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Arithmetic We Need

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1

Numbers Long Ago

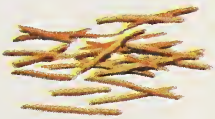
Numbers for groups [O]

Nobo and Teto were cave boys of long ago. They had no number names, as we have, to tell how many.

1. To find how many in the small group of sheep in the path, Teto put up a finger for each sheep. Nobo made marks on a rock instead. Show on the board how we can write the number. Why is this better?

2. Teto knew he did not have enough fingers to count the larger group of sheep, so he put down one stick for each sheep. Look at Teto's pile of sticks in picture A and guess how many sheep Teto counted in all.

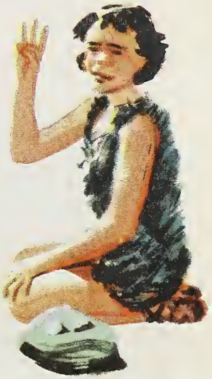
A



3. Nobo saw a way to use fingers and pebbles instead of marks on the rock. Each time as soon as all his fingers were up, he put a pebble on a rock to stand for the number of fingers on both hands.

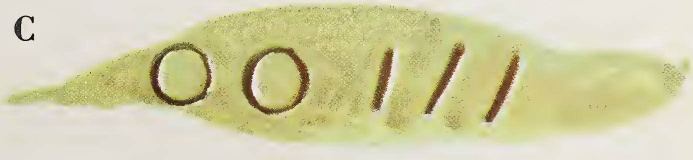
What number is Nobo showing in picture B? Why is the finger-and-pebble plan better than the stick plan?

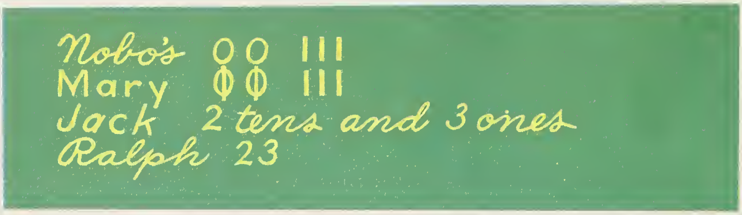
B



4. In picture C is a way to write the number for Nobo's pebbles and fingers. What does each mark mean?

C




Nobo's OO III
Mary ΦΦ III
Jack 2 tens and 3 ones
Ralph 23

Learning about Numbers

Meaning of numbers [O]

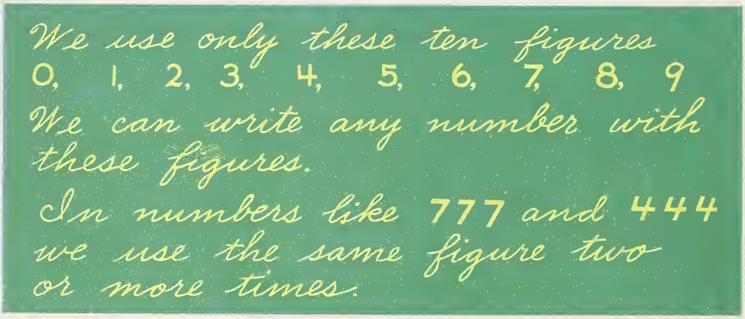
Miss King wrote Nobo's number for the large group of sheep. She asked for other ways to write the number.

1. Mary made a bundle number. Read Mary's number. How is it like Nobo's?

2. Jack wrote "2 tens and 3 ones." How does Jack's way show the meaning of this number?

3. Ralph wrote "23." Why is Ralph's way best of all?

Miss King wrote on the board:

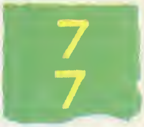

We use only these ten figures
0, 1, 2, 3, 4, 5, 6, 7, 8, 9
We can write any number with
these figures.
In numbers like 777 and 444
we use the same figure two
or more times.

Miss King then said, "In 77, the 7's look alike. How do we know what each 7 means?"

Joan said, "When we write two figures, one tells how many **ones**. The other tells how many **tens**."

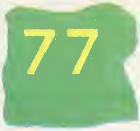
Miss King then said, "Let's see whether Joan is right." She wrote Ex. **A** on the board and said, "I wrote two figures. Is this seventy-seven?"

A



4. Peter said, "You wrote two 7's all right, but they don't mean seventy-seven because . . ." Can you tell why?

B



5. When Miss King wrote Ex. **B**, Peter said, "That's better. The 7's mean different things now." Why? What does each 7 in 77 mean?

6. In 52, the 2 is in the first, or one's, place so it means two _?_. What does 5 in 25 mean?

7. In 52, the figure 2 written in one's place holds the 5 in the second place, or in _?_ place. So, the 5 in 52 really means five _?_, or 50.

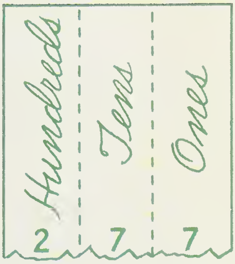
8. Tell the meaning of each figure in the numbers below:

a. 61 **b.** 39 **c.** 55 **d.** 70

[W]

9. Make a chart like the one at the right. Put the number 277 in the chart as shown. Then put in your chart the numbers below:

a. 88 **b.** 222 **c.** 999
d. 346 **e.** 4 **f.** 27



Whether a figure means ones or tens or hundreds, and so on, is shown by the place of that figure in a number.

The Wonderful Wonders of "Nothing"

0 as a place-holder and as a symbol for nothing [O]

1. Our figure 0 is very useful. For one thing, 0 is a place-holder. Tell the places 0 holds in box **A.**

2. What would happen to 350 if the 0 were not there?

3. How could you write 305 without 0?

4. Did you ever see a number like 035? Where? Why isn't this 0 needed?

5. What happens if the place of 0 is changed in numbers a to c in box **A**?

A

a. 350
b. 305
c. 035

6. As a place-holder, 0 helps us in working with numbers, too. What might happen if we had to add numbers written without 0's, as in box **B**?

When 0 keeps other figures of a number in their places, it is called a place-holder.

B

$$\begin{array}{rrrr} 2 & & 3 & \\ 3 & 2 & & 6 \\ +2 & & & 3 \\ \hline \end{array}$$

But 0 can show something else. In the box at the right, 0 shows that Tom made no points in his second, fourth, and fifth turns in a ring game. Bob made nothing in his first, second, and fourth turns.

Tom	Bob
4	0
0	0
4	7
0	0
0	5

When 0 is used by itself it means nothing, none, not any.

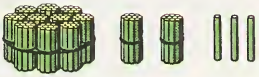
7. In box A, the zeros are place-holders. 0 means "no ones" in one's place in 350; _?_ in 305; _?_ in 035.

Taking Numbers Apart

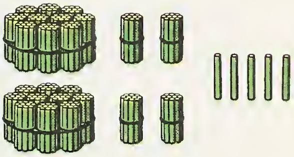
[O]

We have been using to stand for 1 and for 10. Now let stand for 100.

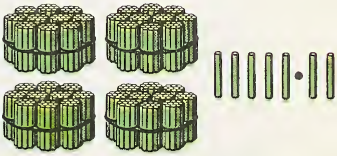
A



B



C



1. Explain why picture A can stand for (mean) 123.

2. What number is shown by picture B? picture C? Why?

3. On the board, write "123" using only 10-bundles and ones.

4. In the number 123, the 1 stands for 1 _?_. It also stands for 10 tens. Why?

5. In 123, how many tens in all are there, 2 or 12? Explain.

6. In the number 245, how many tens in all are there?

7. In the number 407, what figure is in ten's place? Why? How many tens in all are there in 407? Explain.

Explain the work in Ex. 8 and 9.

8. 543 = 5 hundreds and 4 tens and 3 ones (500 + 40 + 3)
or 54 tens and 3 ones (540 + 3)

9. 706 = 7 hundreds and 0 tens and 6 ones (700 + 00 + 6)
or 70 tens and 6 ones (700 + 6)

[W]

For each example below, take the number apart and write its meaning, as in Ex. 8 and 9:

10. 451 **11.** 609 **12.** 728 **13.** 304 **14.** 940

The Meaning of Addition (A.)

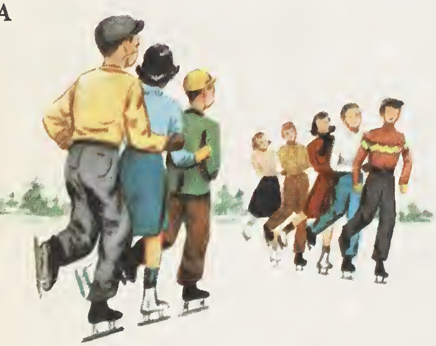
Ways of adding [O]

1. We can say, "There are a few hats" or "There are five hats." Why is it better to use the number?

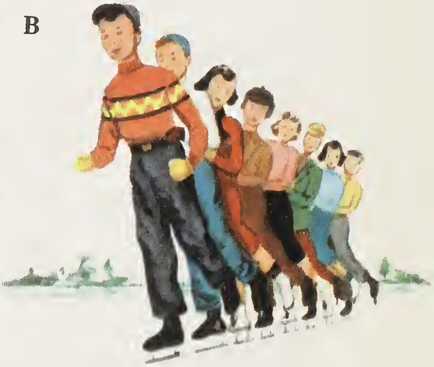
2. We can say, "There were seventy cowboys" or "There were a lot of cowboys." Which way is better?

Numbers stand for groups. To show how many there are in a group we use a number.

A



B



3. We can show a put-together story with pictures (see A and B). The story in words is:

Three children plus five children are eight children.

Which way is easier, pictures or words?

4. The put-together story can also be told with figures: 3 + 5 = 8. Why is this way best?

When you put groups together to find how many in all, you are adding.

Can You Always Add Like-Groups?

Like-numbers [O]

1. At our picnic there were 9 girls and 8 boys. That was a total of how many _?_.

Think, "9 children and 8 children are 17 _?_." What was done to make like-groups?

2. In one bag we had 15 apples. In another we had 10 apples. 15 _?_ and 10 _?_ are 25 _?_.

The names of these groups do not have to be changed before adding them. Why?

3. We had 12 pears and 20 plums. (Are they all pears or plums or pieces of fruit?)

12 _?_ and 20 _?_ = 32 _?_.

When numbers stand for groups of things alike in some way, they are like-numbers.

Things to Know About Addition

To find the sum (total number), you add.

Only like-numbers can be added. Then the sum is also a like-number.

The sum is larger than any number added.

How Well Do You Remember How to Add?

Inventory [W]

Do you remember how to add? Try these examples just for fun.

Lay a sheet of paper under the examples in row 1. Write just the sums. Fold the paper and do the same for row 2. Fold again for row 3.

	a	b	c	d	e	f	g
1.	30 +6	47 +22	3 +36	51 +9	38 +16	9 +88	46 +75
2.	321 +57	463 +307	14 +285	529 +67	348 +370	89 +265	207 +398
3.	46 32 +10	7 9 +80	24 8 +56	48 35 +47	9 73 +28	328 46 +108	145 279 +276

If you made mistakes in rows 1 to 3, read the helps below to find out why you made the mistakes:

To add numbers quickly and correctly you must

a. know the addition facts (A. facts) very well.

b. add figures downward.

c. start to add at the right. Add first the ones, then the tens and then the hundreds.

d. write figures in their correct places.

e. know when and how to carry.

f. check your work by adding upward.

g. be careful in all your work.

The next pages will help you to add better.

Addition Test 1

[W]

Number stories, like $3 + 5 = 8$ and $\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array}$ are called addition facts (or A. facts).

To be good in adding, you must be able to look at examples like $3 + 5 = ?$ and write sums quickly without counting or using help.

Write just the sums on folded paper.

	a	b	c	d	e	f	g	h	i
1.	9 +6	7 +8	6 +8	5 +6	7 +9	3 +8	9 +4	2 +6	8 +7
2.	3 +6	5 +2	7 +3	3 +5	6 +4	4 +5	6 +3	8 +2	2 +7
3.	4 +3	2 +4	3 +2	4 +1	2 +5	5 +3	8 +4	4 +9	6 +5
4.	5 +4	2 +8	1 +7	3 +4	4 +4	6 +2	3 +7	4 +6	7 +2
5.	9 +3	8 +9	7 +4	9 +8	7 +6	8 +3	4 +7	8 +8	7 +5
6.	6 +7	9 +5	6 +9	3 +3	5 +8	2 +9	7 +7	8 +6	3 +9
7.	5 +9	9 +7	8 +5	9 +9	4 +8	5 +7	6 +6	5 +5	9 +2

Study your work. Make a list of the examples that were hard for you. Study page 10, and then say over and over the facts that were hard.

Helpers for Addition Facts

[O]

A.	4	5	6	7
	+4	+5	+6	+7

1. Tell the sums for the examples in rows **A** to **F**.

B.	4	7	1	1
	+1	+1	+3	+8

2. Row **B.** Make a rule for adding 1 and another number.

C.	4	7	2	2
	+2	+2	+5	+8

3. Row **C.** Make a rule for adding 2 and another number.

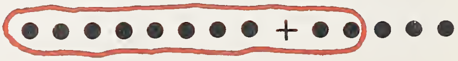
D.	4	5	6	7
	+3	+4	+7	+8

4. Row **D.** Use a double to find each sum. For $4 + 3$, *think*, "$4 + 4 = 8$, so $4 + 3 = 7$" or *think*, "$3 + 3 = 6$, so $4 + 3 = 7$."

5. Make a rule for using doubles as in row **D.**

E.	8	5	9	8
	+5	+7	+4	+6
F.	5	7	4	6
	+9	+6	+8	+5

6. Rows **E** and **F.** Make a ten to find each of these sums. For $8 + 5 = ?$ use this dot picture:



Think, "Make a 10. $10 + 3 = 13$, so $8 + 5 = 13$."

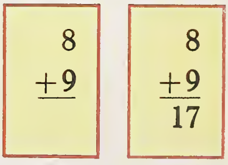
7. Make a rule for using a 10 as in rows **E** and **F.**

To Keep in Practice

Study cards [W]

On page 313, cover the answers and say the addition facts, using helpers if you need to.

For each fact you find hard, make a study card with front and back as at the right.



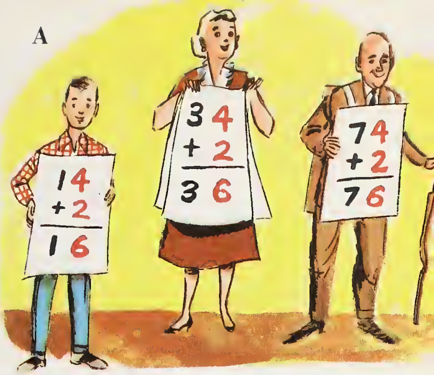
Front **Back**

Addition Families

Adding by endings [O]

1. Why can we say that the examples in picture A are in the 4 + 2 addition family? Tell why the one's figure in the sum for each example is the same.

A



2. 4 + 2 is less than 10. How does this help you to know what the ten's figure in each sum will be?

B

13	52	60
+6	+5	+9

3. Tell a quick way to add a 2-place and a 1-place number if the sum of the one's figures is less than 10.

4. Give the sums for the examples in box **B.**

5. What is the addition family in box **C**? Since 5 + 8 is more than 10, what change must this make in the ten's figure in each sum in box **C**?

C

35	45	25
+8	+8	+8
43	53	33

D

52	77	19
+9	+6	+5

6. Tell a good way to think the sum of a 2-place and a 1-place number when the addition fact has a sum equal to or larger than 10.

7. Say the sums for the examples in box **D.**

8. Tell just the sums for the examples below:

35	52	33	44	65	81	72	40
+7	+6	+5	+9	+8	+5	+8	+7

Adding by Using Families

Adding by endings [O]

What part of the sum has been found for you in row 1 below? What part do you need to find?

What part of the sum has been found in row 2?

Say all these sums as fast as you can talk:

	a	b	c	d	e	f	g	h	i
1.	47 +6 ?3	56 +8 ?4	23 +7 ?0	95 +4 ?9	61 +8 ?9	78 +5 ?3	19 +3 ?2	80 +7 ?7	37 +2 ?9
2.	61 +5 6?	48 +9 5?	57 +8 6?	32 +7 3?	28 +2 3?	74 +7 8?	45 +9 5?	39 +2 4?	16 +9 2?
3.	54 +9 ?3	36 +8 ?4	43 +9 ?2	28 +7 ?5	17 +5 ?2	92 +6 ?8	39 +9 ?8	85 +4 ?9	67 +5 ?2
4.	17 +3 2?	48 +7 5?	29 +4 3?	56 +9 6?	33 +5 3?	39 +5 4?	87 +9 9?	54 +4 5?	75 +8 8?

[W]

Write only the sums.

	a	b	c	d	e
5.	19 + 5	69 plus 6	25 and 8	73 + 7	28 + 8
6.	58 + 7	37 plus 3	36 and 9	65 + 9	14 + 2
7.	49 + 4	32 plus 9	89 and 3	63 + 2	36 + 5
8.	27 + 5	44 plus 6	84 and 5	58 + 4	13 + 8
9.	76 + 4	23 plus 3	64 and 9	85 + 7	36 + 3
10.	17 + 9	19 plus 8	27 and 8	76 + 9	40 + 9

Using Addition Facts and Families

Column A.; A. without carrying; checking [O]

1. At the pet show there were 6 dogs, 8 kittens, and 3 rabbits, or how many pets in all?

In box **A**, add downward. Look at 6 and 8; *think* "_?_." Look at 3; say "_?_."

2. To add the column in box **B**, look at 9 and 6; *think* "_?_." Look at 8; say "_?_."

3. To add in box **C**, look at 16 and 2; *think* "_?_." Then look at 7 and say "_?_."

4. Add upward to check. For box **A**, look at 3 and 8; *think* "11." Look at 6; say "_?_."

5. Say the check for box **B**; for box **C**.

6. To work Ex. **A** to **C**, what addition facts must you know? What addition families?

7. Box **D**. Ones: Look at 3 and 4 and say "_?_." Tens: Look at 2 and 1; say "_?_."

8. Box **E**. Ones: Look at 3 and 5 and say "_?_." Tens: Look at 2 and 3; say "_?_." Hundreds: Look at 4 and 2 and say "_?_."

9. Say the check for box **D**; for box **E**.

A

$$\begin{array}{r} 6 \\ 8 \\ \underline{+3} \end{array}$$

B

$$\begin{array}{r} 9 \\ 6 \\ \underline{+8} \end{array}$$

C

$$\begin{array}{r} 16 \\ 2 \\ \underline{+7} \end{array}$$

D

Tens	Ones
2	3
+1	4

E

Hundreds	Tens	Ones
4	2	3
+2	3	5

Practice in Adding

[W]

Copy the numbers and add. Check your work.

1. 15 + 2
2. 7 + 23
3. 63 + 5
4. 52 + 30
5. 64 + 32
6. 533 + 203
7. 164 + 124
8. 26 + 13
9. 6 + 5 + 8
10. 9 + 7 + 6
11. 7 + 7 + 3
12. 8 + 5 + 8

Addition Test 2

[W]

Write just the sums on folded paper.

	a	b	c	d	e	f	g	h
1.	37 +2	6 +43	50 +4	6 +32	26 +20	67 +12	44 +40	35 +23
2.	59 +10	38 +11	538 +220	465 +311	633 +30	409 +100	455 +102	567 +30
3.	12 8 +5	3 6 +7	8 9 +5	6 7 +9	24 3 +4	5 8 +6	0 8 +7	9 4 +7

Study your work. Did you make mistakes?

1. Did you miss addition facts? Use your study cards.
2. Did you forget to use addition families?
3. Did you forget to start at the right, adding first ones, then tens, then hundreds?

Extra Practice Sets are given on pages 317–326 to help you. Find your mistakes in Addition Test 2 and work Sets 1, 3, and 5. Then take the test again.

Addition with Carrying

Carrying a ten or a hundred [O]

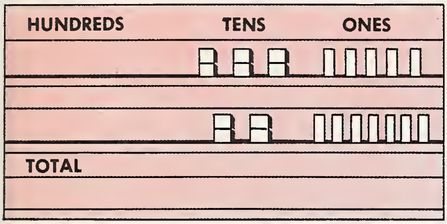
A

$$\begin{array}{r} \overset{1}{3}5 \\ +27 \\ \hline 62 \end{array}$$

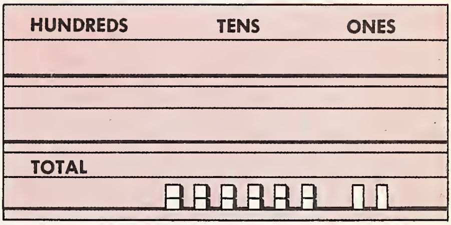
1. To find the number of children in two rooms, Tom added as in box **A**. Why did he put the 1 above the 3? What does it mean?

2. To prove his answer, what two numbers did Tom show in a pocket chart (picture **B**)?

B



C



3. In picture **C**, Tom has found the total. Tell how Tom carried a ten. Did he prove his answer?

In addition, you carry when the sum of the ones is 10 or more.

D

$$\begin{array}{r} \overset{1}{5}84 \\ +263 \\ \hline 847 \end{array}$$

4. In box **D**, add the ones, then the tens. 14 tens = _?_ hundred and _?_ tens. What does the 1 above the 5 mean?

It is quicker not to show the carrying.

Explain the additions in Ex. 5 to 9.

5. $\begin{array}{r} 35 \\ +37 \\ \hline 72 \end{array}$

6. $\begin{array}{r} 221 \\ +259 \\ \hline 480 \end{array}$

7. $\begin{array}{r} 153 \\ +408 \\ \hline 561 \end{array}$

8. $\begin{array}{r} 340 \\ +87 \\ \hline 427 \end{array}$

9. $\begin{array}{r} 425 \\ +192 \\ \hline 617 \end{array}$

You carry hundreds like tens.

Practice in Adding

[W]

Copy in columns and add. Check your work.

1. 36 + 47
2. 23 + 9
3. 64 + 26
4. 74 + 19
5. 82 + 67
6. 248 + 37
7. 46 + 229
8. 507 + 204
9. 305 + 128
10. 78 + 209
11. 340 + 293
12. 83 + 365
13. 412 + 396
14. 524 + 82
15. 357 + 260

Prove your answer for Ex. 1 by using ones and bundles of tens in a pocket chart.

Addition Test 3

[W]

Write just the sums on folded paper. Check.

	a	b	c	d	e	f	g
1.	36 +90	59 +35	52 +62	64 +26	46 +29	73 +16	45 +49
2.	128 +37	347 +409	248 +436	248 +509	353 +317	824 +19	25 +438
3.	365 +162	563 +85	451 +181	65 +170	518 +250	33 +491	260 +479

▶ **Extra Practice.** Study your work to find out why you made mistakes. If you made mistakes in row 1, work Sets 2 and 4. If you made mistakes in rows 2 and 3, work Set 6. Then take Addition Test 3 again.

Carrying both Tens and Hundreds

[O]

We may carry both tens and hundreds, as in box **A**.

Ones: Look at 6 and 8; *think*, "14." Write "4" in one's place in the sum and carry 1 (ten). How is that 1 (ten) shown?

Tens: Look at 1, 7, and 9; *think*, "8, 17." The 17 tens (170) are equal to 1 hundred and 7 tens. Write "7" in ten's place in the sum and carry 1 (hundred). How is the carried 1 (hundred) shown in box A?

A

	Hundreds	Tens	Ones
	1	1	
	3	7	6
+	2	9	8
	6	7	4

Hundreds: Look at 1, 3, and 2; *think*, "4, 6." Write "6" in hundred's place in the sum. Why?

In boxes **B** and **C** the adding is done without showing carried figures. Explain the work.

B	**C**
436	78
+284	+453
720	531

Sometimes you carry both tens and hundreds.

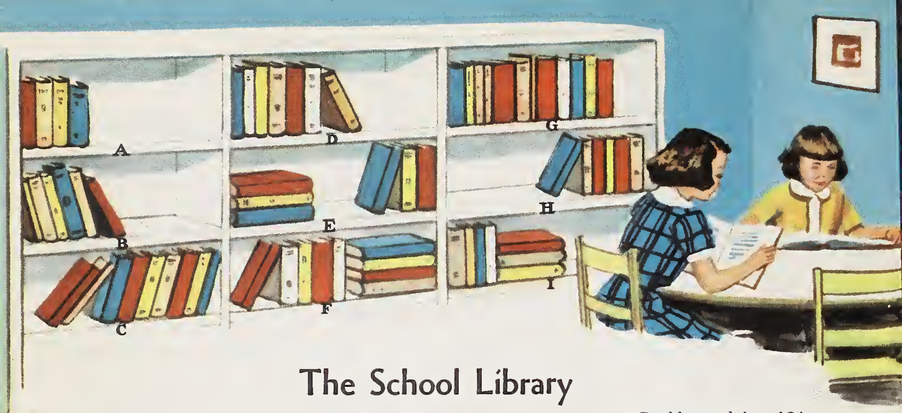
Addition Test 4

[W]

Write the sums on folded paper. Check your work.

	a	b	c	d	e	f	g
1.	563 +77	635 +106	641 +279	447 +169	463 +388	32 +299	368 +440
2.	174 +405	88 +543	489 +272	179 +658	577 +43	266 +698	345 +396

➔ **Extra Practice.** Work Set 7 and take Test 4 again.



The School Library

Problem-solving [O]

Just tell why you must add in each problem below.

1. How many children came to the library each day?

	Monday	Tuesday	Wednesday
In morning	28	35	28
In afternoon	36	37	27

2. How many books were taken out each day?

	Monday	Tuesday	Wednesday
By girls	15	39	69
By boys	33	32	36

3. How many books were on each group of 3 shelves?

a.	Shelf A	4	**b.**	Shelf D	7	**c.**	Shelf G	12
	Shelf B	6		Shelf E	6		Shelf H	6
	Shelf C	9		Shelf F	9		Shelf I	7

4. Find the total paid for fines each two months.

a.	Sept.	49¢	**b.**	Nov.	33¢	**c.**	Jan.	52¢
	Oct.	36¢		Dec.	57¢		Feb.	38¢

[W]

Now copy the numbers in Ex. 1 to 4 and do the adding. For Ex. 4, write ¢ beside each sum.

Can You Add Harder Columns of Numbers?

[O]

Do you remember how to add four and five numbers in a column? Study boxes **A** to **D** for help.

1. Box **A.** Look at 8 and 5 and *think*, "13." Remember 13, add 6 and *think*, "19." Remember 19, add 9 and say "_?_."

2. Box **B.** *Think*, "15, 20, 27, 30." Explain the work.

A

$$\begin{array}{r} 8\\ 5\\ 6\\ +9\\ \hline 28 \end{array}$$

B

$$\begin{array}{r} 6\\ 9\\ 5\\ 7\\ +3\\ \hline 30 \end{array}$$

3. Box **C.** Ones: *Think*, "14, 23, 30." Write "0," and carry 3 tens. How is the carried 3 (tens) shown?

Next add tens. *Think*, "6, 10, ?, ?." The sum is _?_.

4. Box **D.** What is new here? In adding, *think*, "10, 19, 25." Write "5" and carry 2 tens. Then *think*, "7, 14." Explain the work.

In examples like **C** and **D** it is quicker not to show the carrying.

C

$$\begin{array}{r} \overset{3}{3}8\\ 46\\ 29\\ +17\\ \hline 130 \end{array}$$

D

$$\begin{array}{r} \overset{2}{5}2\\ 8\\ 9\\ +76\\ \hline 145 \end{array}$$

[W]

Copy in columns, and add. If you understood the work in boxes **A** to **D**, you can do all of these examples.

	a	b	c
5.	24, 39, 67, 54	79, 408, 213	25, 500, 139
6.	39, 7, 8, 6, 8	41, 78, 69, 67	808, 135, 38
7.	120, 406, 62	26, 373, 255	6, 7, 3, 5, 9
8.	8, 49, 5, 16, 35	9, 3, 8, 7, 4	24, 38, 47, 57
9.	5, 8, 7, 2, 9	14, 97, 65, 89	200, 143, 400

Addition Test 5

[W]

Write the sums on folded paper.

	a	b	c	d	e	f	g
1.	2 3 4 +7	4 0 5 +9	8 5 7 +7	7 7 6 7 +6	6 5 6 9 +8	9 8 5 7 +5	9¢ 7¢ 3¢ 5¢ +6¢
2.	47 56 +82	19 8 +7	59 54 76 +68	12 48 5 +49	55 5 9 +35	9 46 6 +14	36¢ 20¢ 3¢ +8¢
3.	312 245 +107	507 68 +100	222 356 +87	678 74 +7	426 83 +24	204 103 +498	38 239 +56

➤ **Extra Practice.** Study your work. If you need help, work Set 8. Then take Addition Test 5 again.

Getting the Same Sum

Changing the order [W]

1. Copy and finish Ex. a and b in the box. Are the sums the same in both examples? Why?

2. Write each of these sets of numbers in three different orders and add each time:

a. 9, 6, 8, 5 **b.** 23, 34, 45, 67

a.	**b.**
32 46 +39	39 32 +46

3. Does changing the order change the sum?

Practice in Adding

[W]

You have now had all the kinds of addition you learned last year. Copy the numbers below in columns, and add. Check your work.

1. 59 + 238
2. 28 + 71
3. 290 + 599
4. 318 + 65
5. 227 + 689
6. 709 + 185
7. 48 + 85
8. 469 + 527
9. 547 + 276
10. 76 + 769
11. 546 + 394
12. 158 + 479

13. 65 + 32 + 57
14. 38 + 8 + 5 + 9
15. 5 + 4 + 4 + 9 + 5
16. 40 + 9 + 6 + 5
17. 543 + 24 + 18
18. 83 + 613 + 108
19. 302 + 260 + 237
20. 16 + 37 + 55 + 89

Right or Wrong? Why?

Review of meanings [O]

1. The total number of tens in 569 is 6.

2. 35 + 9 belongs to the 5 + 9 addition family.

3. The time between 3 o'clock and 7 o'clock is not the same as that between 7 o'clock and 3 o'clock.

4. 682 is the largest number that can be written using the three figures 2, 6, and 8.

5. The number 703 can be thought of as meaning 69 tens and 13 ones.

6. The example 3 + 4 + 5 = ? has the same sum as the example 4 + 5 + 3 = ?

7. You add only numbers standing for like-groups.

8. 642 is read, "Six hundred forty-two."

Collecting Old Clothes

Help in problem-solving; completing A. problems [O]

1. The boys are collecting old clothes. They brought in 18 pairs of black shoes, and 27 pairs of brown shoes.

How can you use this story to make up an addition problem? A good question for an addition problem would be, "How many pairs of shoes were collected in all?" Can you ask the question another way?

[W]

Write addition problem questions for Ex. 2 to 6. Do not work the problems.

2. Ralph's mother let him collect old clothes for 45 minutes on Monday and 30 minutes on Tuesday.

3. To get old clothes, Tom called at 12 houses and Bob called at 19.

4. One day 3 green hats, 4 gray hats, and 7 hats of other colors were collected.

5. George counted 15 coats and 9 dresses.

6. The boys sent 5 bundles to one town, 7 bundles to another town, and 14 to still another.

Addition Test 6

[W]

Copy these numbers in columns and add. Check.

1. 91 + 138
2. 77 + 65
3. 43 + 26
4. 215 + 497
5. 245 + 286
6. 952 + 47
7. 262 + 627
8. 444 + 165
9. 70 + 868

10. 46 + 4 + 5 + 6
11. 39 + 98 + 25 + 87
12. 5 + 0 + 9 + 8 + 9
13. 39 + 753 + 58
14. 105 + 212 + 386
15. 4 + 9 + 8 + 7 + 9
16. 606 + 27 + 8
17. 275 + 316 + 208

How Much? How Many? How Heavy?

Inventory [W]

Write on your paper the missing words or numbers.

1. It takes _?_ oranges to make a dozen.

2. When a pound of butter is cut into 16 equal pieces, each piece weighs 1 _?_.

3. In counting, after "twenty-ninth" we say "_?_."

4. A gallon of oil fills _?_ quart jars.

5. One yard is as long as _?_ 1-foot rulers placed end to end.

6. If you have a quart of milk, you have _?_ pints.

7. Eight plums and _?_ more make a dozen.

8. A short way to write "ounce" is _?_.

9. 16 ounces = 1 _?_
10. _?_ inches = 1 foot
11. _?_ pints = 1 quart
12. 1 yard = 3 _?_

The Meaning of Subtraction (S.)

Reasons for subtracting; ways of subtracting [O]

1. At Mr. Brown's shop, Mary bought 3 of the 12 tennis balls in a box. How many of the tennis balls were left?

You can find how many were left

a. by using the picture; or

b. by making dots. ● ● ● ● ● ● ● ● ● ~~●~~ ~~●~~ ~~●~~

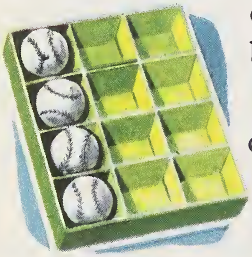
The dots stand for the 12 balls. The dots crossed out show the 3 balls Mary bought. How can you find the number left (the remainder)?

Finish the number stories in these three ways:

3 balls from 12 balls is _?_ balls.

12 minus 3 = ? $12 - 3 = ?$

2. Mr. Brown opened a new box of 12 baseballs. Two days later, only 4 were left. How many baseballs had he sold?



You are to find how many gone. You can find how many are gone

a. by using the picture; or

b. by making dots. ● ● ● ● ● ● ● ● (● ● ● ●)

The 4 dots in the ring stand for the 4 balls Mr. Brown has now. How can you find the number of balls gone?

Finish the number story in these three ways:

4 balls from 12 balls is _?_ balls.

12 minus 4 = ? $12 - 4 = ?$

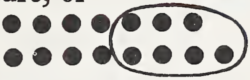
3. Tom had 7¢ to buy a 15¢ game. His mother gave him the rest of the money. How much did she give him?

Here you subtract to find the other part of a number. The number is 15. One part is 7.

You can find the other part

a. by using the picture; or

b. by making dots.



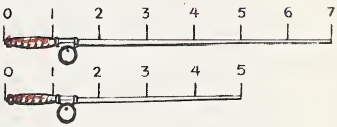
Finish the number story in these three ways:

7 pennies from 15 pennies is _?_ pennies.

15¢ minus 7¢ = ?

15¢ − 7¢ = ?

4. How much longer is a 7-foot fish pole than a 5-foot fish pole?



In this problem you compare two numbers. You subtract to find the difference.

Compare lines and finish these number stories:

7 feet is _?_ feet more than 5 feet. 7 − 5 = ?

5 feet is _?_ feet less than 7 feet. 7 − 5 = ?

In Ex. 1 to 4, did you subtract like-numbers?

You can subtract like-numbers to find

a. how many left;
b. how many gone;
c. the other part;
d. the difference.

The answer is smaller than the number from which you subtract.

How Well Do You Remember How to Subtract?

Inventory [W]

Do you remember how to subtract? Just for fun try these examples.

Copy rows 1 to 3 and find the remainders.

	a	b	c	d	e	f	g
1.	38 − 5	79 − 8	57 − 37	68 − 46	973 − 350	944 − 630	886 − 281
2.	40 − 7	63 − 9	72 − 38	51 − 18	361 − 146	490 − 438	649 − 569
3.	632 − 472	709 − 65	728 − 570	885 − 97	431 − 395	205 − 148	613 − 298

If you made mistakes in the examples above, read the helps below to find why you made the mistakes.

To subtract quickly and correctly, you must

a. know all the subtraction facts (S. facts).

b. begin to subtract at the right, first the ones, then the tens, then the hundreds.

c. write figures in answers in their correct places.

d. know when and how to borrow.

e. check by adding the answer to the number you subtracted.

f. be careful in all your work.

The next pages will help you to subtract better.

Subtraction Test 1

[W]

To be good in subtracting, you must know all the subtraction facts. That is, you must be able to look at examples like those in the box and write their remainders quickly, without counting or using help.

8 − 3 = ?

15
−6
?

Write just the remainders on folded paper.

	a	b	c	d	e	f	g	h	i	j	k
1.	7 −2	6 −4	9 −9	10 −2	8 −5	9 −2	9 −1	7 −5	9 −8	8 −2	7 −4
2.	5 −4	5 −3	7 −6	5 −5	8 −6	6 −2	8 −7	10 −1	5 −2	6 −3	6 −5
3.	8 −3	7 −1	9 −7	10 −8	7 −3	9 −6	7 −7	9 −3	10 −6	9 −4	8 −1
4.	10 −4	8 −4	10 −5	12 −6	10 −7	14 −9	9 −5	16 −8	11 −7	13 −7	10 −3
5.	14 −5	12 −9	11 −4	13 −6	15 −9	14 −6	11 −9	10 −9	16 −9	10 −8	11 −2
6.	11 −8	13 −4	15 −7	12 −5	16 −7	17 −9	12 −3	11 −5	12 −7	15 −8	18 −9
7.	13 −8	14 −7	11 −3	13 −9	17 −8	12 −8	11 −6	14 −8	15 −6	13 −5	12 −4

Study your work. Copy examples that were hard and make study cards. Turn to pages 28 and 29 for help.

The Whole Story in A. and S.

[O]

1. Use the picture for these four facts. For each subtraction fact, you cover one of the groups.

$3 + 4 = 7$ $4 + 3 = 7$ $7 - 3 = 4$ $7 - 4 = 3$

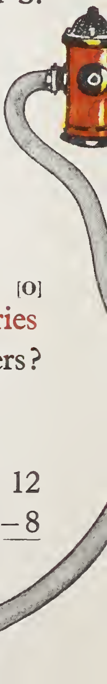
The four facts in Ex. 1 make up the whole story in addition and subtraction about 3, 4, and 7.

Say the whole story in A. and S. about

2. 3, 5, and 8.   3. 4, 6, and 10.   4. 7, 6, and 13.

5. How many parts has the whole story in A. and S. about 3, 3, and 6? about 7, 7 and 14? Why?

The whole story for a double has two facts. Every S. fact (or A. fact) not a double goes with three other facts to make a whole story.



Helpers for Subtraction

[O]

A.
$$\begin{array}{rrrr} 9 & 11 & 14 & 15 \\ -3 & -4 & -5 & -7 \\ \hline \end{array}$$

Row A. What whole stories help in finding these remainders?

Row B. Say the answer for each example.

B.
$$\begin{array}{rrrrrrrrrr} 7 & 9 & 8 & 9 & 13 & 12 & 13 & 14 & 15 & 12 \\ -4 & -6 & -2 & -4 & -8 & -5 & -6 & -9 & -9 & -8 \\ \hline \end{array}$$

Row **C.** You can use doubles for these examples. In the first example *think*, "12 − 6 = 6, so 11 − 6 = 5." Tell what doubles you can use for the other examples in row **C.** Explain.

C. $\begin{array}{rrrr} 11 & 8 & 9 & 15 \\ -6 & -5 & -5 & -8 \\ \hline \end{array}$

D. $\begin{array}{rrrr} 13 & 16 & 12 & 14 \\ -6 & -7 & -5 & -6 \\ \hline \end{array}$

Row **D.** Use doubles to get remainders for these examples.

Row **E.** In subtracting from a teen number, think of the teen number as 10 and some ones. Subtract first from the 10. Then add the ones to that remainder.

For 13 − 9 *think*, "10 − 9 = 1. Then 1 + 3 = 4, so 13 − 9 = 4."

E. $\begin{array}{rrrr} 13 & 17 & 15 & 17 \\ -9 & -8 & -6 & -9 \\ \hline \end{array}$

F. $\begin{array}{rrrr} 15 & 13 & 16 & 14 \\ -7 & -5 & -9 & -5 \\ \hline \end{array}$

Tell how to find the other answers in row **E.**

Row **F.** By subtracting first from 10, tell how to find the answers in row **F.**

Row **G.** Say 2 helper examples you could use with each example. Tell how to use them.

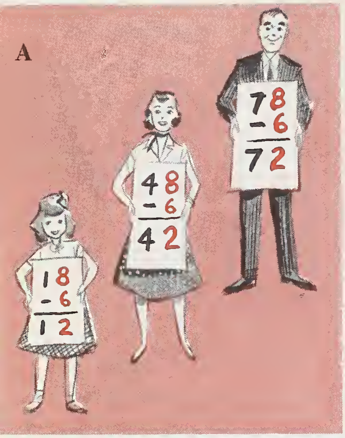
G. $\begin{array}{rrrr} 13 & 12 & 14 & 11 \\ -6 & -7 & -6 & -5 \\ \hline \end{array}$

[W]

Copy and work Ex. 1 to 12. After each example write two helper examples you could use.

1. $\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$ **2.** $\begin{array}{r} 15 \\ -6 \\ \hline \end{array}$ **3.** $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$ **4.** $\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$ **5.** $\begin{array}{r} 17 \\ -9 \\ \hline \end{array}$ **6.** $\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$

7. $\begin{array}{r} 13 \\ -4 \\ \hline \end{array}$ **8.** $\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$ **9.** $\begin{array}{r} 16 \\ -9 \\ \hline \end{array}$ **10.** $\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$ **11.** $\begin{array}{r} 11 \\ -3 \\ \hline \end{array}$ **12.** $\begin{array}{r} 15 \\ -8 \\ \hline \end{array}$



Subtraction Families

[O]

1. The examples in picture A at the left belong to what subtraction family? Why?

2. In all the answers, 2 is in one's place. Why?

3. In examples like 18 − 6, 48 − 6, and 78 − 6, you can subtract without borrowing a ten. So, how can you tell quickly the ten's figure in the answers?

4. Say the remainders for the examples in box **B.**

B

59	19	89
−5	−5	−5

5. To what subtraction family do all the examples in box C belong?

6. The one's figure in all the answers in box C is 9. Why?

7. To change the ones 5 − 6 to 15 − 6, you use a ten. What does this do to the ten's figure in the remainder?

C

45	95	25
−6	−6	−6
39	89	19

D

62	30	47
−9	−8	−5

8. To what subtraction family does each example in box **D** belong? Give the remainders.

9. Tell just the remainders for the examples below.

31	49	51	72	63	27	90	80
−9	−6	−8	−5	−7	−4	−7	−6

Subtraction without Borrowing

[O]

In subtracting with 2- and 3-place numbers, you subtract first ones, then tens, then hundreds.

A

$$\begin{array}{r} 86 \\ -52\uparrow \\ \hline 34 \end{array}$$

B

$$\begin{array}{r} 749 \\ -206 \\ \hline 543 \end{array}$$

Box **A**. Ones: For 2 from 6 *think*, "4." Write "4" in one's place in the answer.

Tens: For 5 from 8 *think*, "3." Write "3" in ten's place in the remainder.

Check by adding the remainder (34) to the number you subtracted (52). This time add upward. For 4 and 2 *think*, "6." For 3 and 5 *think*, "8."

C

$$\begin{array}{r} 175 \\ -82 \\ \hline 93 \end{array}$$

D

$$\begin{array}{r} 476 \\ -403 \\ \hline 73 \end{array}$$

Box **B**. Tell what to think and write for one's, ten's, and hundred's places. Say the check.

Explain the work in **C** and **D**.

Subtraction Test 2

[W]

Write remainders on folded paper. Check your work.

	a	b	c	d	e	f	g
1.	57 −3	68 −8	70 −4	56 −7	95 −3	33 −6	21 −6
2.	93 −63	57 −50	186 −52	99 −27	148 −80	676 −15	117 −34
3.	876 −360	249 −208	754 −42	890 −350	535 −21	437 −117	809 −401

➊ **Extra Practice.** If you made mistakes, find out why. Work Sets 9 to 11. Then take Subtraction Test 2 again.

On the School Playground

Help in problem-solving; completing S. problems [W]

Write subtraction problems of your own, using the following. Do not work the problems.

1. Of the 15 girls in the class, 9 are on the playground.

2. Jane threw the basketball 12 times and made baskets 6 times.

3. Helen said she would throw the basketball 12 times, too. She has only 3 throws left.

4. Mary made 18 baskets. Ruth made 6 baskets.

5. One team of boys made 12 points while another team made 8 points.

6. Three of the 10 boys on the teams kept on playing with the ball after the game.

7. Five of the 29 girls on the playground went back early into the school building.

8. Fourteen of the 45 boys stayed on the playground to clean up.

[O]

Read your problems to the class. See if they think your questions make subtraction problems.

Subtraction Problems

Reasons for subtracting; S. without borrowing **[O]**

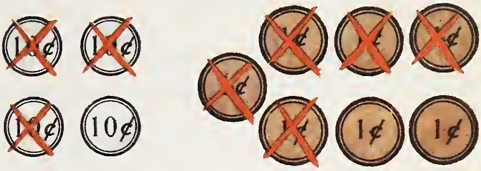
Tell why you should subtract in each problem.

1. How much money would Dick have after spending

a. 35¢ of his 47¢?

b. 63¢ of his 68¢?

c. 14¢ of his 57¢?

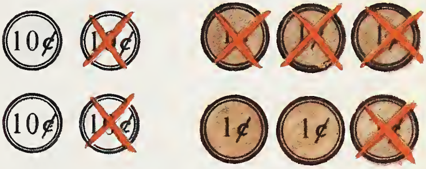


2. How much money must Betsy earn if she has

a. 24¢ and wants 46¢?

b. 33¢ and wants 59¢?

c. 16¢ and wants 86¢?



3. Ruth is 10 years old. How much older or younger is

a. Ann who is 12?

b. Tom who is 8?

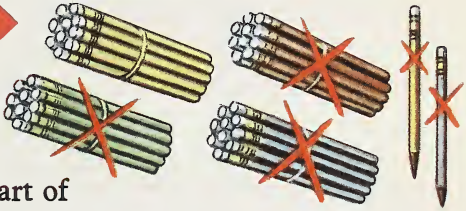
c. Her aunt who is 36?

4. How many pencils did Bob sell if at first he had

a. 42 and now has 32?

b. 50 and now has 30?

c. 75 and now has 50?



5. What is the other part of

a. 65¢ if one part is 15¢?

b. 78¢ if one part is 42¢?

c. 97¢ if one part is 33¢?

d. 89¢ if one part is 35¢?

[W]

Copy the numbers and do the subtracting. Draw pictures of coins or use ⌽-pictures if you need to.

Subtracting with Borrowing

Borrowing a ten [O]

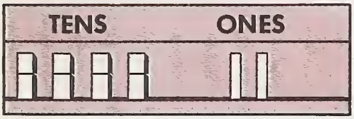
Jane and Ruth cut out 28 of the 42 paper pumpkins for the party. Jane asked how many more they needed.

$$\begin{array}{r} \overset{3}{\cancel{4}}\,\overset{\textcircled{12}}{\cancel{2}} \\ -2\,8 \\ \hline 1\,4 \end{array}$$

1. To find out, Ruth wrote the numbers and subtracted as at the left. What does the little 3 mean? the circled 12?

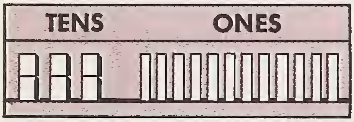
2. Was her work correct? Check.

A



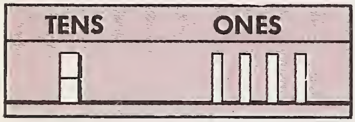
3. Jane proved the work by using the pocket chart. What number is shown in picture **A**? Explain.

B



4. To take 28 from 42, Jane first had to subtract ones. She could not take 8 from 2, so she changed, or borrowed, a ten Explain picture **B**.

C



5. Could Jane then subtract the ones? the tens? What was her answer (picture C)? How was her work with the pocket chart like Ruth's work?

In subtraction you borrow a ten when you cannot subtract the ones.

Tell the mistakes you find in Ex. 6 to 10.

6. 73	7. 50	8. 190	9. 984	10. 621
−35	−46	−36	−75	−215
48	4	154	919	406

[W]

Copy and subtract. When you need to borrow, try to do it quickly by not writing the changed numbers.

11. 87 − 29
12. 152 − 33
13. 68 − 45
14. 137 − 18
15. 336 − 305
16. 455 − 49
17. 780 − 163
18. 582 − 34
19. 948 minus 907
20. 208 from 811
21. 205 from 553
22. 666 minus 149

Draw pictures for Ex. 11 like pictures A to C, page 34.

Subtraction Test 3

[W]

Write remainders on folded paper. Check your work.

	a	b	c	d	e	f	g	h
1.	81	73	87	46	94	91	765	162
	29	24	27	28	48	85	59	47
2.	694	714	466	742	292	489	574	681
	237	205	406	218	279	39	347	163

Extra Practice. If you had trouble with borrowing, study page 34 again and work Set 12. Then take Subtraction Test 3 again.

So you won't forget how to add, take Test 3 above as an addition test. Use folded paper.

Borrowing a Hundred in Subtraction

[O]

1. In Ex. A, is it ones or tens that cannot be subtracted without borrowing?

To subtract the tens, borrow 1 hundred (10 tens). Why? Then add the borrowed 10 tens to the 2 tens of 527 and subtract.

527 = 5 hundreds and 2 tens and 7 ones, or
4 hundreds and 12 tens and 7 ones.

2. Explain box B. Say the check.

A

$$\begin{array}{r} 5\,2\,7 \\ -6\,2 \\ \hline ?\,?\,5 \end{array}$$

B

$$\begin{array}{r} \overset{4}{\cancel{5}}\,\overset{\textcircled{12}}{\cancel{2}}\,7 \\ -6\,2 \\ \hline 4\,6\,5 \end{array}$$

Tell the mistakes you see in Ex. 3 to 6.

$$\textbf{3.}\ \begin{array}{r} 418 \\ -32 \\ \hline 386 \end{array} \qquad \textbf{4.}\ \begin{array}{r} 825 \\ -355 \\ \hline 570 \end{array} \qquad \textbf{5.}\ \begin{array}{r} 446 \\ -382 \\ \hline 164 \end{array} \qquad \textbf{6.}\ \begin{array}{r} 957 \\ -384 \\ \hline 673 \end{array}$$

When you cannot subtract the tens, you must borrow a hundred.

Subtraction Test 4

[W]

Write remainders on folded paper. Check your work.

$$\begin{array}{lrrrrrrr} & \text{a} & \text{b} & \text{c} & \text{d} & \text{e} & \text{f} & \text{g} \\ \textbf{1.} & 439 & 379 & 764 & 618 & 546 & 158 & 869 \\ & -106 & -195 & -184 & -65 & -175 & -76 & -78 \\ \hline \textbf{2.} & 489 & 627 & 148 & 649 & 368 & 624 & 958 \\ & -99 & -587 & -\ \ 56 & -197 & -265 & -280 & -398 \\ \hline \end{array}$$

➤ **Extra Practice.** For more help, study Ex. 1 to 6 above and work Set 13. Take Subtraction Test 4 again.

Borrowing both a Ten and a Hundred

[O]

1. In Ex. **A** can you subtract the ones? Why? Can you subtract the tens? Why?

2. Explain what has been done in box **B**.
753 = 7 hundreds and 4 tens and 13 ones.

3. In box **B** can you subtract the tens?

4. Explain what has been done in box **C**.
753 = 6 hundreds and 14 tens and 13 ones.

A

$$\begin{array}{r} 7\,5\,3 \\ -8\,9 \\ \hline \end{array}$$

B

$$\begin{array}{r} 7\,\overset{4}{\cancel{5}}\,\overset{⑬}{\cancel{3}} \\ -8\,9 \\ \hline \end{array}$$

C

$$\begin{array}{r} \overset{6}{\cancel{7}}\,\overset{⑭}{\cancel{5}}\,\overset{⑬}{\cancel{3}} \\ -8\,9 \\ \hline 6\,6\,4 \end{array}$$

Explain the subtractions in Ex. 5 to 8.

5. $\begin{array}{r} 351 \\ -97 \\ \hline 254 \end{array}$ 6. $\begin{array}{r} 532 \\ -488 \\ \hline 44 \end{array}$ 7. $\begin{array}{r} 721 \\ -279 \\ \hline 442 \end{array}$ 8. $\begin{array}{r} 247 \\ -148 \\ \hline 99 \end{array}$

[W]

Copy in columns and subtract. Check your work.

9. 348 − 79
10. 856 − 359
11. 721 − 653
12. 832 − 68
13. 423 minus 185
14. 237 from 631

Sometimes you borrow a ten and a hundred.

Subtraction Test 5

[W]

Write remainders on folded paper. Check your work.

	a	b	c	d	e	f	g
1.	929 −86	721 −146	630 −232	519 −279	436 −49	530 −378	157 −68
2.	825 −265	446 −377	918 −358	324 −65	875 −273	437 −79	653 −274

➤ **Extra Practice.** Work Set 14 and take Test 5 again.

Billy and His Chicks

Differentiating A. and S. [W]

Write the numbers 1 to 8 on your paper. Write "A." after numbers of problems in which you should add. Write "S." if you subtract.

1. It takes about 21 days for a hen's eggs to hatch. After 9 days, how many more days did the hen have to sit on the eggs?

2. Ten chicks hatched out of a nest of 12 eggs. How many eggs did not hatch?

3. Billy put 15 chicks in a box with 35 others. The box then held how many chicks?

4. Out of 32 chicks hatched one day, 14 were yellow. The rest were black. How many were black?

5. Billy sold 26 chicks on Monday and 28 chicks on Tuesday. How many more chicks did Billy sell on Tuesday than on Monday?

6. On the two days, how many chicks did Billy sell in all? (Use the numbers in Ex. 5.)

7. Billy broke 4 of the 18 eggs he had collected one morning. How many of the 18 eggs were still good?

8. Nine of the 36 chicks in a pen hopped out. How many chicks did that leave in the pen?

Now go back and work each problem. Draw pictures of ones and tens if you need help.

0's in Subtraction

[O]

1. In box **A**, can you subtract the ones? Why?

2. Box **B**. Think of 800 as 80 tens. From 80 tens borrow 1 ten, and change it to 10 ones. Then 800 = 7 hundreds and 9 tens and 10 ones. Explain Ex. **B**.

$$\begin{array}{r} \text{A} \\ 8\,0\,0 \\ -3\,1\,6 \\ \hline \end{array} \qquad \begin{array}{r} \text{B}\ {\scriptstyle 7\ \ 9\ \textcircled{10}} \\ \cancel{8}\,\cancel{0}\,\cancel{0} \\ -3\,1\,6 \\ \hline 4\,8\,4 \end{array}$$

3. In box **C**, we change 503 to 49 tens and 13 ones, or 4 hundreds and 9 tens and 13 ones. Explain and check the work.

4. Explain the work for box **D**.

$$\begin{array}{r} \text{C}\ {\scriptstyle 4\ \ 9\ \textcircled{13}} \\ \cancel{5}\,\cancel{0}\,\cancel{3} \\ -2\,5\,7 \\ \hline 2\,4\,6 \end{array} \qquad \begin{array}{r} \text{D}\ {\scriptstyle 3\ \textcircled{10}\,\textcircled{14}} \\ \cancel{4}\,\cancel{1}\,\cancel{4} \\ -3\,8\,9 \\ \hline 2\,5 \end{array}$$

[W]

Copy in columns and subtract. Try to think the borrowing without writing it. Check your work.

5. 705 − 679 **7.** 806 − 57 **9.** 900 minus 222
6. 500 − 321 **8.** 704 − 146 **10.** 87 from 813

Subtraction Test 6

[W]

Copy in columns and subtract. Check your work.

1. 508 − 269 **6.** 305 − 28 **11.** 504 − 308
2. 604 − 315 **7.** 814 − 379 **12.** 800 − 793
3. 813 − 476 **8.** 900 − 874 **13.** 711 − 292
4. 507 − 438 **9.** 105 − 36 **14.** 400 − 316
5. 700 − 76 **10.** 300 − 172 **15.** 914 − 88

➤ **Extra Practice.** Study boxes **A** to **D** above and work Set 15. Then take Test 6 again.

Practice in Subtracting

[W]

You have now had all the kinds of subtraction you learned last year. Write on folded paper the remainders for the examples in rows 1 to 3. Check your work.

	a	b	c	d	e	f	g
1.	608 −244	81 −69	963 −853	400 −72	136 −40	89 −9	624 −135
2.	87 −24	587 −259	510 −483	648 −87	811 −118	72 −8	159 −92
3.	555 −475	378 −175	900 −815	678 −89	916 −267	52 −46	236 −194

Copy these numbers in columns and subtract.

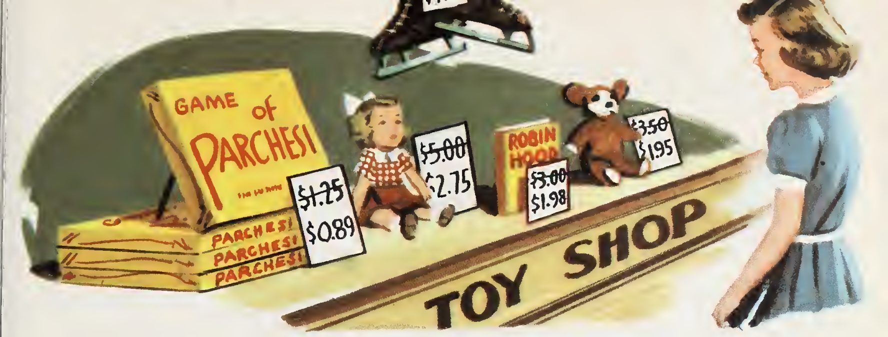
4. 88 − 30
5. 152 − 73
6. 623 − 415
7. 732 − 85
8. 800 − 736
9. 214 − 29
10. 579 minus 433
11. 290 from 465
12. 652 minus 82

Subtraction Test 7

[W]

Copy and write remainders. Check your work.

	a	b	c	d	e	f	g
1.	209 −109	546 −294	701 −263	619 −45	823 −285	930 −366	854 −67
2.	930 −587	638 −368	731 −687	730 −49	767 −358	799 −730	723 −326
3.	648 −57	401 −374	445 −280	656 −480	576 −395	941 −675	832 −79



Adding and Subtracting Money Numbers

[O]

1. If Sue buys the book at the sale, how much will she save? Explain box A.

2. How much can Tom save by buying the skates? Explain the work in box B.

3. How much must Mary pay for the doll and the game? Explain box C.

A

$$\begin{array}{r} \$3.00 \\ -1.98 \\ \hline \$1.02 \end{array}$$

B

$$\begin{array}{r} \$9.50 \\ -7.75 \\ \hline \$1.75 \end{array}$$

C

$$\begin{array}{r} \$2.75 \\ +0.89 \\ \hline \$3.64 \end{array}$$

With money numbers, use $ to show dollars and write the cent point at the left of the two figures for cents. Keep the cent points in a straight line in your work.

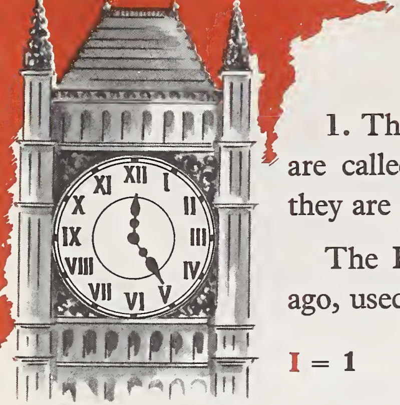
[W]

Copy in columns, and add or subtract.

	a	b	c
4.	$6.09 – $4.72	$5.00 – $0.87	$6.28 + $0.79
5.	$8.12 – $4.89	$2.12 + $6.48	$7.11 – $4.67
6.	$6.64 + $3.26	$3.53 – $2.67	$2.13 – $0.89
7.	$7.07 – $3.85	$4.06 – $0.85	$9.79 – $7.93

8. 8 dollars and 2 cents – 4 dollars and 5 cents.

9. 4 dollars and 26 cents + 3 dollars and 74 cents.



Roman Numbers

[O]

1. The numbers on the tower clock are called Roman numbers. Tell how they are different from our numbers.

The Romans, who lived many years ago, used letters for numbers.

I = 1 **V** = 5 **X** = 10 **L** = 50

Romans wrote their number-letters side by side to make other numbers. Most Roman numbers are made by adding. Study the adding numbers below.

XVI = 10 + 5 + 1 = 16 **XXX** = 10 + 10 + 10 = 30

2. XII means 10 + _?_ + _?_, or 12.

3. Tell what these adding numbers mean to us:

II XIII XVI VIII XXI

Romans made other numbers by subtracting. The three numbers below are the only subtracting numbers between 1 and 50. Study them until you know them.

IV = 1 from 5 = 4 **IX** = 1 from 10 = 9 **XL** = 10 from 50 = 40

The pairs of letters for 4 or 9 or 40 are often used with other letters to make adding numbers.

4. Tell what the Roman numbers below mean to us. For XLIV, first see the XL, which means "40", and the IV, which means "4." XLIV means "40+4 or 44."

XLIV XXIX XIV XLVII XXXIX

	X	XX	XXX	XL
I	XI	XXI	?	?
II	XII	XXII	?	?
III	XIII	XXIII	?	?
IV	XIV	XXIV	?	?
V	XV	?	?	?
VI	XVI	?	?	?
VII	?	?	?	?
VIII	?	?	?	?
IX	?	?	?	?

5. In the Roman number II, each I means "1." That is, the value of the Roman I does not change when its place in a number is different. What is the value of each I in III?

6. In our number 111, what does the 1 at the left mean? the 1 in the middle? the 1 at the right? Explain.

[W]

7. Copy the table above. Take plenty of room. The first column shows the Roman numbers I to IX.

Finish the next column for the teen numbers in your table. Then fill in the other columns.

If you can do this, you can write all the Roman numbers from 1 to 50.

Write these numbers our way:

8. XXII

9. XIV

10. XLIII

11. VII

12. XIX

13. XXIV

14. XXXI

15. XLVIII

Write these numbers the Roman way:

16. 33

17. 18

18. 6

19. 11

20. 42

21. 28

22. 34

23. 49

Do You Understand?

Test of Information and Meaning 1

Write "Yes" or "No" to answer questions 1 to 11.

1. Can you add $2.75 and 346 children?

2. Do you need 6 yards of rope for your jump rope?

3. Do doubles have 4 parts in their whole stories?

4. Do you have to borrow 1 hundred when you can not subtract the ones?

5. Are there 14 eggs in 1 dozen?

6. Does $22 + 38 + 46 = 106$ have a different sum from $46 + 22 + 38 = ?$

7. Are there 85 tens in all in the number 856?

8. To find how many are gone, must you subtract?

9. Is this a way to write 2 cents? $0.2

10. To add 437 and 390, must you carry a ten?

11. Does the Roman number XIX mean "21"?

Write in figures the numbers for

12. 6 hundreds and 3 tens.

13. 3 hundreds and 9 ones.

14. 13 tens and 7 ones.

15. 6 tens and 0 ones.

16. Write the largest number you can with 4, 2, and 7.

17. Write 3 examples in the $6 + 7$ family.

18. Write a subtraction problem about 15¢ and 9¢. Make it a finding-the-difference problem.

19. Write a 3-place number with 0 in ten's place.

Can You Solve Problems?

Problem Test 1

This is a test. Work these problems carefully.

1. Bob paid $3.00 for a model airplane. Tom bought one for $2.69, or $_?_ less.

2. Tom paid for his $2.69 plane with $5.00. How much money should he get back?

3. Sam bought two little planes, one for $1.75 and one for $2.29. How much did they cost together?

4. For hangars for the planes, the boys spent 57¢, 46¢, 35¢, and 35¢. How much was this in all for hangars? Write your answer with dollar sign and cent point.

5. Bob's plane flew 107 feet. Tom's flew 85 feet. Find the difference between the two distances.

6. A plane costs $7.50. Joe has saved $2.85 for the plane. How much more does he need?

7. Joe wants to sell three old planes, one for 75¢, one for 65¢, and one for 35¢. How much will he get?

Check your work so as to have no mistakes.

Do You Make Mistakes?

Diagnostic Test 1

Copy the numbers. Find and check all answers.

	a	b	c	Study Pages	Practice Sets
1.	6 +69	128 +59	$3.09 +5.47	11, 15, 41	1 to 6
2.	134 +75	242 +467	$1.52 +7.86	15, 41	1 to 6
3.	47 +256	352 +249	$2.63 +4.48	17, 41	7
4.	78 −5	469 −63	$5.98 −2.67	30, 31, 41	9, 11
5.	93 −7	527 −419	$3.47 −0.19	30, 34, 41	10, 12
6.	134 −80	256 −199	$8.43 −0.67	36, 37, 41	13, 14
7.	500 −369	611 −548	$8.00 −3.78	37, 39, 41	15

If you made mistakes in row 1, study pages 11, 15, and 41. Then work examples from Sets 1 to 6.

In the same way, the numbers after the other rows tell you what to do for mistakes in those rows.

Test Yourself 1

[W]

With this work you can test yourself to find out if you are ready for the test at the bottom of this page.

Copy and work Ex. 1 to 16. Don't work too fast. Try for correct answers the first time.

1. 970	2. 67	3. 850	4. 561	5. 82
−759	+898	−298	−479	+349
6. 817	7. 700	8. $2.53	9. $5.46	10. 831
−675	−206	+5.87	−3.89	−297

11. 3 + 8 + 7 + 9 + 6 **14.** 18 + 49 + 67 + 76

12. 93 + 302 + 470 **15.** 87 + 69 + 557

13. 385 + 84 + 395 **16.** 7 + 9 + 5 + 6 + 8

17. Write in a column all the addition facts for 10. In another column, write the subtraction facts for 10.

How Well Can You Figure?

Computation Test 1

Copy, and add or subtract. Check your work.

1. 247	2. 803	3. $9.04	4. 822	5. $2.62
+486	−755	−2.38	−634	+5.56
6. $8.02	7. $6.21	8. 265	9. 800	10. 520
−5.83	−5.64	+676	−587	−489

11. 386 + 347 + 25 **14.** 7 + 8 + 6 + 4 + 9

12. 5 + 683 + 59 **15.** 5 + 9 + 6 + 8 + 4

13. 89 + 10 + 57 + 45 **16.** 37 + 48 + 82 + 64

2

Telling Time

To exact minute [O]

The clock on the table shows 15 minutes past 4, or quarter past 4. We write the time this way, "4:15."

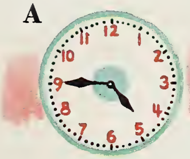
The clock on the wall, above the boy's head, shows 30 minutes past 9, or half past 9. We write this, "9:30."

The big clock on the shelf shows 10 minutes before 3, or 50 minutes past 2. We write this, "2:50."

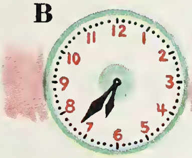
1. The clock in the man's hands shows 27 minutes past 1. Why? We write this, "1:27."

2. Tell the time shown on each clock below. Then write the time on the board.

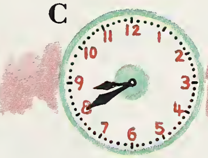
A



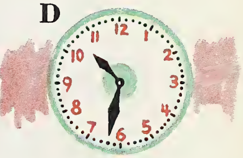
B



C



D



12:00 M. means twelve o'clock noon.

4:00 A.M. means four o'clock before noon, or four o'clock in the morning.

4:00 P.M. means four o'clock after noon, or four o'clock in the afternoon.

[W]

Draw clocks for the time in Ex. 3 and 4. Then for Ex. 5 to 7, write figures. For Ex. 5, write "2:44 A.M."

3. Quarter before 6 o'clock in the morning.

4. Half past 2 in the afternoon.

5. Sixteen minutes before three in the morning.

6. Forty-six minutes past 1 in the afternoon.

7. Eleven minutes before 4 in the morning.

Questions about Time

Table of time [O]

This watch shows the time in hours, minutes, and seconds. It takes the tiny second hand one minute, or 60 seconds, to go around its circle. See how many seconds it takes you to walk across the front of your classroom.

[W]

Write answers for Ex. 1 to 7.

1. Would you go to bed at 9:00 A.M. or at 9:00 P.M.?

2. Would the evening plane from Central City leave at 7:30 A.M. or at 7:30 P.M.?

3. What letters do you write after 11:30 to show that it is night, not morning?

4. Are there more minutes than hours in a day?

5. Does any month have as many as 6 weeks?

6. Are there 60 or 100 seconds in a minute?

7. Does any year have more than 365 days?

Do you know the facts in this table of time?

60 seconds (sec.) = 1 minute (min.)
60 min. = 1 hour (hr.)
24 hr. = 1 day (da.)
7 da. = 1 week (wk.)
12 months (mo.) = 1 year (yr.)
365 da. = 1 year
366 da. = 1 leap year

Months of year [O]

Do you know this jingle about the days in a month?

Thirty days have September,
  April, June, and November.
All the rest have thirty-one
  Except February, which has twenty-eight;
But Leap Year, coming once in four,
  Gives February then one day more.

See if you can say and spell the names of the months.

From the table or the jingle find these answers:

Number of Days in the Month

January (Jan.)	31
February (Feb.)	28 or 29
March (Mar.)	31
April (Apr.)	30
May	31
June	30
July	31
August (Aug.)	31
September (Sept.)	30
October (Oct.)	31
November (Nov.)	30
December (Dec.)	31

8. What is the ninth month in the year?

9. Name the months with 30 days.

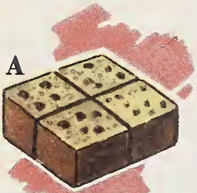
10. Does any month have more than 31 days?

11. "Oct." stands for what month?

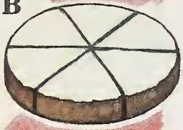
12. How do you write September the short way?

13. Which month has more days, May or July?

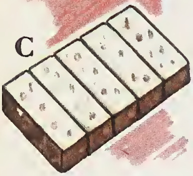
A



B



C



Equal Parts of Wholes

Naming parts with fractions [O]

Each cake at the left is cut into equal pieces. Since the parts of each whole are equal in size, we can name them. We name the parts with fractions.

1. Cake A is divided into _?_ equal pieces. What fraction name can you give each part?

2. Each equal part of cake B is $\frac{1}{6}$ of the whole. What does the 6 under the line tell us?

3. What fraction can you use as a name for each of the equal pieces of cake C? Why?

4. Does square D, below, show sevenths? Why or why not?

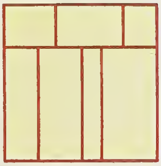
5. Is square E divided into eighths? Is square F divided into eighths? Explain.

6. Tell the fraction name for each part of square G. How can square G be changed to show ninths? Show this on the board.

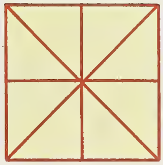
7. If a whole is divided into 10 equal parts, what fraction name can you give to each part?

8. If you have $\frac{1}{5}$ of something, how many other parts of the same size can there be?

D



E



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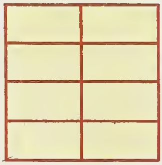
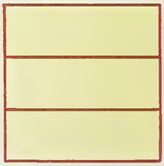


G

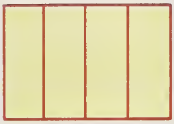


Write in figures these fraction names:

9. one eighth	11. one fifth	13. one sixth
10. one tenth	12. one seventh	14. one ninth

15. Write in words the name for each part of these:

H



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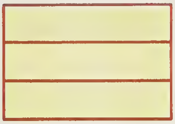

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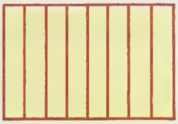

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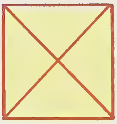


16. Write in figures the fraction that names one of
a. five equal parts; b. eight equal parts.

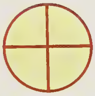
17. Draw two squares. Divide them in different ways to show halves.

18. Draw a rectangle. Divide it into fifths.

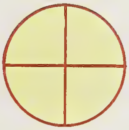
19. Draw a rectangle. Divide it into tenths.

To tell about one of the equal parts of a whole, we use a number called a fraction. The fraction names the part and tells how large it is.

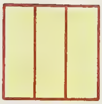
L



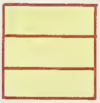
M



N



O

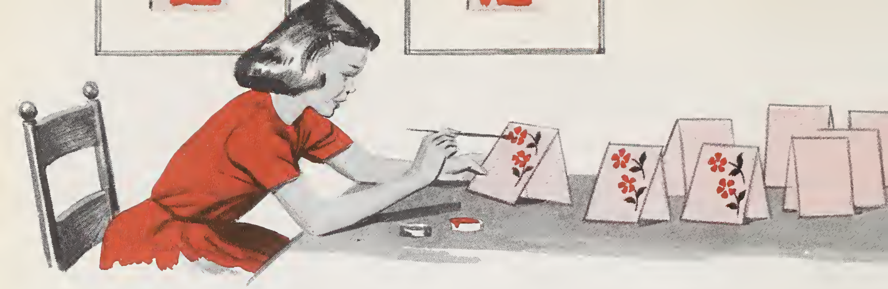


20. Circles L and M both show fourths. Is $\frac{1}{4}$ of the circle L equal to $\frac{1}{4}$ of the circle M? Why?

21. Is $\frac{1}{3}$ of square N equal to $\frac{1}{3}$ of square O? Why?

22. Is $\frac{1}{2}$ of a peanut the same size as $\frac{1}{2}$ of a pear?

Two fractions, such as $\frac{1}{2}$ and $\frac{1}{2}$, are equal only if the wholes are equal.



Understanding Multiplication (M.)

Meaning [O]

1. How many flowers has Jane painted on 3 cards?

a. You can count the flowers in the picture.

b. You can count pairs of dots. ●● ●● ●●

c. You can add two ways:

$2 + 2 + 2 = 6$ or →

d. Or, you can multiply three ways:

Three 2's = 6, or $3 \times 2 = 6$ or →

The sign × tells us to multiply. For all three ways we say, "Three 2's are 6."

A

$$\begin{array}{r} 2\\ 2\\ +2\\ \hline 6 \end{array}$$

B

$$\begin{array}{r} 2\\ \times 3\\ \hline 6 \end{array}$$

2. Use the picture to help you tell how many leaves Jane has painted on the 6 flowers.

Find out as in a, b, and c above.

On the board, write the multiplication example in three ways.

3. Jane has to make 4 cards for each of 2 tables. How many cards must she make?

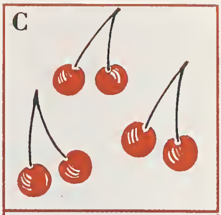
Which dot picture is the one for the problem?

●● ●● or ● ● ● ●
●● ●● ● ● ● ●

On the board, write the addition example two ways and the multiplication example three ways.

4. How many cherries in all are shown in box **C**? On the board show how to

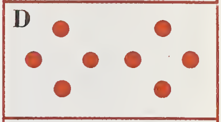
a. make a dot picture;
b. write the A. example 2 ways;
c. write the M. example 3 ways.

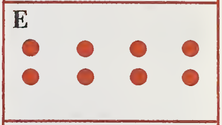


5. How many are four 2's?

Which box, **D** or **E**, shows the dot picture for four 2's? Why?

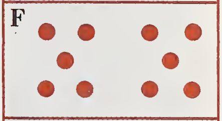
On the board, write the addition and multiplication examples for Ex. 5.

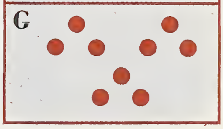




On the board, write the addition and multiplication examples shown in

6. box **F**. **7.** box **G**.





To find a total, you can add or multiply. Multiply instead of adding, if the groups or numbers are equal.

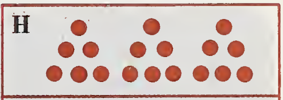
[W]

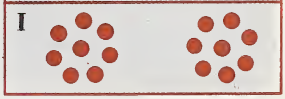
8. Make a dot picture to show 3 + 3 + 3 + 3. Write in 3 ways the multiplication example it shows.

9. Make a dot picture for 2 × 4. Write in 2 ways the addition example it shows.

Write the A. and M. examples for

10. box **H**. **11.** box **I**.





Write as A. examples (2 ways).

12. 5 × 3 **13.** five 2's **14.** three 4's

Write as M. examples (3 ways).

15. 2 + 2 + 2 + 2 + 2 + 2 **16.** 6 + 6 + 6 + 6

Should You Add or Multiply?

Problem-solving; meaning of M. **[O]**

To find the total, you can add or multiply. Multiply instead of adding only when the groups or numbers are equal.

For these problems, tell when to add and when to multiply. Do not do the work.

1. An Indian put 4 eagle feathers in one of his headbands, 6 in another, and 8 in another. That was how many eagle feathers in all?

2. Three other headbands had 6 feathers each, or how many in all three headbands?

3. The Indian made some belts. He used 3 red beads on one belt, 4 on another, and 5 on another. How many red beads did he use?

4. Next, he put 4 blue beads on each of the 3 belts. How many blue beads did he use?

5. Two Indian boys shot 3 arrows each at a target. That was how many arrows in all?

6. Four targets had 3, 2, 6, and 4 arrows stuck in them. How many arrows were there in all?

Now go back and say the answers for problems 1 to 6.

How Well Do You Remember How to Multiply?

Inventory [W]

Just for fun try these multiplication examples.

Copy and write the answers.

	a	b	c	d	e	f	g
1.	43 ×2	20 ×3	22 ×4	101 ×7	24 ×2	303 ×3	$0.10 ×4
2.	31 ×8	72 ×2	31 ×6	82 ×3	31 ×5	183 ×3	$1.21 ×6
3.	24 ×5	97 ×3	22 ×7	123 ×5	87 ×2	238 ×3	$1.32 ×5

If you made mistakes in the examples above, read the helps below to find why you made the mistakes.

To multiply quickly and correctly, you must
a. know all the multiplication facts (M. facts).
b. multiply first ones, then tens, then hundreds.
c. know when and how to carry.
d. write figures in answers in the correct places.
e. be able to check (by multiplying again).
f. be careful in all your work.

To Keep in Practice

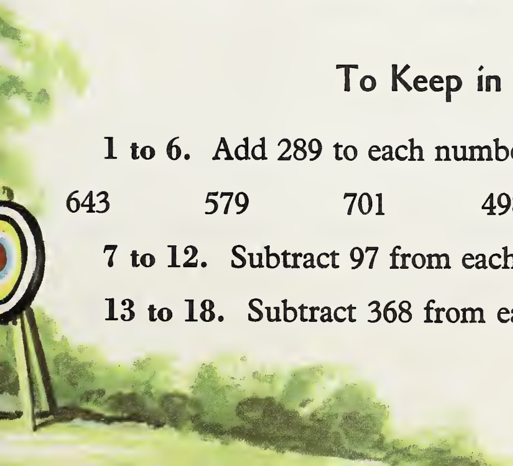
[W]

1 to 6. Add 289 to each number below.

643 579 701 498 611 689

7 to 12. Subtract 97 from each number above.

13 to 18. Subtract 368 from each number above.



Multiplication Test 1

M. facts [W]

$3 \times 5 = ?$

or $\begin{array}{r} 5 \\ \underline{\times 3} \\ ? \end{array}$

To multiply well, you must know the multiplication facts. You should *think* "15" quickly when you look at ⟶

Write answers (products) for rows 1 to 5 on folded paper.

	a	b	c	d	e	f	g	h	i
1.	2 ×2	1 ×6	4 ×2	1 ×3	9 ×2	1 ×2	9 ×1	3 ×3	6 ×2
2.	4 ×3	3 ×2	3 ×6	1 ×9	5 ×3	1 ×4	1 ×8	9 ×3	8 ×3
3.	2 ×4	2 ×1	8 ×1	2 ×7	3 ×5	2 ×9	8 ×2	3 ×9	4 ×1
4.	3 ×7	5 ×1	2 ×3	7 ×1	2 ×6	1 ×1	6 ×3	6 ×1	3 ×8
5.	1 ×5	7 ×2	3 ×1	7 ×3	2 ×8	1 ×7	2 ×5	5 ×2	3 ×4

The following work will help you to multiply better.

Helpers for Multiplication

[O]

1. Tell the answers in Ex. a to c below.

a	b	c
2 + 2 = 4	2 + 2 + 2 + 2 = 8	3 + 3 + 3 = 9
two 2's = ?	four 2's = ?	three 3's = ?

2. Finish this rule: Multiplication is a short form of _?_.

3. Say the products: **a.** 7 × 2; **b.** 9 × 3; **c.** 6 × 3.

4. Give the answers in Ex. a to c below.

a	b	c
1 + 1 + 1 = 3	1 + 1 = 2	1 + 1 + 1 + 1 = 4
three 1's = ?	two 1's = ?	four 1's = ?

5. Finish this rule: When you multiply 1 by a number, the product is that _?_.

6. Say the products: **a.** 7 × 1; **b.** 5 × 1; **c.** 8 × 1.

7. Give the answers: **a.** 1 × 3; **b.** 1 × 6; **c.** 1 × 4.

8. Finish this rule: When you multiply a number by 1, the product is that _?_.

9. Say the products: **a.** 1 × 8; **b.** 1 × 5; **c.** 1 × 9.

10. Give the answers in Ex. a to c below.

a	b	c
2 + 2 = 4	4 + 4 = 8	7 + 7 = 14
two 2's = ?	two 4's = ?	two 7's = ?

11. Finish this rule: When you multiply a number by 2, the product is the same as the _?_ when you add two equal numbers.

12. Say the products: **a.** 2 × 5; **b.** 2 × 8; **c.** 2 × 6.

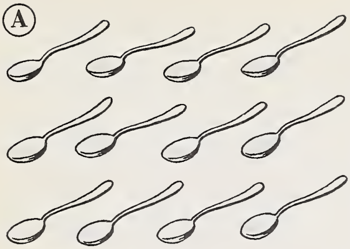
[W]

Now take Multiplication Test 1 on page 58 again.

This time make a list of the multiplication facts that are hard for you. Make study cards for these facts and study them.

The multiplication facts, except those with 0, are on page 315.

Ⓐ



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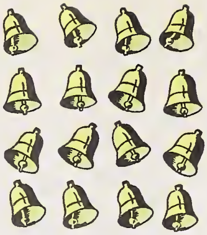


Ⓒ

Multiplication Facts for 4's

[O]

1. Picture A: How many spoons are shown?

There are three rows of spoons, -?- to a row.
Tell the addition example with the sum.
Tell the multiplication example with the product.

2. Picture B has -?- bells. What fact is shown?

3. Picture C has -?- footballs. Tell the multiplication example with the product.

Cover rows of dots in D and count by 4's to find products for Ex. 4 to 8. For Ex. 4, cover rows (8) and (9).

4. $\begin{array}{r}4\\ \times 7\\ \hline\end{array}$ 5. $\begin{array}{r}4\\ \times 5\\ \hline\end{array}$ 6. $\begin{array}{r}4\\ \times 9\\ \hline\end{array}$ 7. $\begin{array}{r}4\\ \times 6\\ \hline\end{array}$ 8. $\begin{array}{r}4\\ \times 8\\ \hline\end{array}$

D

• • • • (1)
• • • • (2)
• • • • (3)
• • • • (4)
• • • • (5)
• • • • (6)
• • • • (7)
• • • • (8)
• • • • (9)

Do you know the facts in the table below?

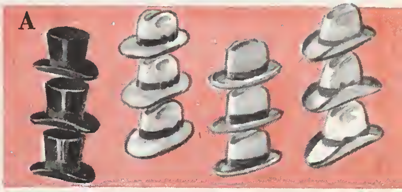
Multiplication Facts for 4's

4	4	4	4	4	4	4	4	4
×1	×2	×3	×4	×5	×6	×7	×8	×9
4	8	12	16	20	24	28	32	36

Multiplication Facts for 4

Pairs of M. facts [O]

1. How many hats are shown in picture A?



_?_ columns, _?_ hats in each column.

3 + 3 + 3 + 3 = ?

Four 3's = ?

2. Find the pair of facts in box **B**. Use the X's.
Four 8's = ? Eight 4's = ? 4 × 8 = ? 8 × 4 = ?

B
X X X X 4
X X X X 4
X X X X 4
X X X X 4
X X X X 4
X X X X 4
X X X X 4
X X X X 4
8 + 8 + 8 + 8 = 32

Every multiplication fact goes with another to make a pair, except when equal numbers are multiplied (as 4 × 4 = 16).

3. Tell the M. fact to go with

a. 3 × 4 = 12.
b. 7 × 2 = 14.
c. 4 × 5 = 20.
d. 2 × 6 = 12.
e. 7 × 3 = 21.
f. 8 × 4 = 32.

[W]

Draw X's for Ex. 4 to 7. Under each group of X's, write its multiplication fact and the one that goes with it.

4. 4 × 6 **5.** 4 × 7 **6.** 5 × 4 **7.** 4 × 9

Multiplication Facts for 4

1	2	3	4	5	6	7	8	9
×4	×4	×4	×4	×4	×4	×4	×4	×4
4	8	12	16	20	24	28	32	36

Practice on Multiplication Facts

[W]

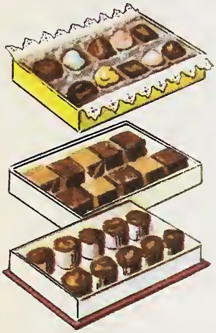
Write the products on folded paper.

	a	b	c	d	e
1.	5 × 3	7 × 3	5 × 4	3 × 9	4 × 3
2.	6 × 4	9 × 3	4 × 7	7 × 4	4 × 4
3.	4 × 2	4 × 5	4 × 6	9 × 4	6 × 3
4.	4 × 9	8 × 4	2 × 4	8 × 3	4 × 8

Extra Practice. Work Set 18.

Multiplying Two-Place Numbers

Multiplying tens [O]



1. Here are 3 boxes of candy with 10 pieces in each box! How many pieces are there in all?

You can add. 10 + 10 + 10 = ?

But since you would have to add three equal numbers (tens), you can multiply.

3 × 1 ten = 3 tens, or _?_. 3 × 10 = ?

2. How many are 4 × 10? 9 × 10? 7 × 10?

Can you say this table of tens?

10	10	10	10	10	10	10	10	10
×1	×2	×3	×4	×5	×6	×7	×8	×9
10	20	30	40	50	60	70	80	90

3. Multiply more than 1 ten the same way:

a. 3 × 2 tens = ? 3 × 20 = ? **b.** 2 × 4 tens = ? 2 × 40 = ?

You multiply tens like ones.

Cover the word "tens" in Ex. 4 to 6. Say the products. Then uncover the word "tens" and say the products.

4. 4 × 3 tens. **5.** 3 × 5 tens. **6.** 4 × 8 tens.

Cover each 0 in Ex. 7 to 18 and say the product. Then uncover the 0 and say the product.

7. 3 × 80 **8.** 4 × 70 **9.** 5 × 40 **10.** 7 × 30
11. 7 × 40 **12.** 5 × 30 **13.** 3 × 40 **14.** 5 × 20
15. 2 × 40 **16.** 9 × 20 **17.** 8 × 40 **18.** 9 × 30

Multiplying ones and tens

19. Each bag of candy has 12 gumdrops. How many gumdrops would there be in 3 bags? 3 × 12 = ?

12 = 1 ten and 2 ones. Multiply ones, then tens. Study the work in the box.

Ones: Look and *think*, "6" (3 × 2). Write "6" in one's place in the product.

Tens: Look and *think*, "3" (3 × 1). Write "3" in ten's place in the product.

$$\begin{array}{r|l} \text{Tens} & \text{Ones} \\ 1 & 2 \\ \times & 3 \\ \hline 3 & 6 \end{array}$$

20. Explain Ex. a to d. Then say the products for Ex. e and f.

a. $\begin{array}{r} 24 \\ \times 2 \\ \hline 48 \end{array}$ **b.** $\begin{array}{r} 32 \\ \times 4 \\ \hline 128 \end{array}$ **c.** $\begin{array}{r} 21¢ \\ \times 3 \\ \hline 63¢ \end{array}$ **d.** $\begin{array}{r} \$0.52 \\ \times 3 \\ \hline \$1.56 \end{array}$ **e.** $\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$ **f.** $\begin{array}{r} 62¢ \\ \times 2 \\ \hline \end{array}$

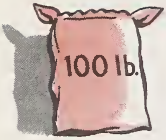
[W]

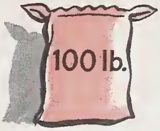
Copy and multiply, as in the box above.

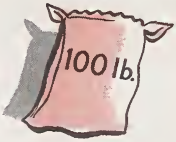
	a	b	c	d
21.	2 × 43	5 × 31	3 × 43	5 × 21
22.	3 × 32	2 × 34	6 × 31	4 × 61
23.	2 × 62	4 × 81	4 × 92	3 × 52

Multiplying Three-Place Numbers

Multiplying hundreds [O]







1. Each bag of oats weighs 100 lb. How much do the 4 bags of oats weigh?

4 × 1 hundred = 4 hundreds, or -?-. 4 × 100 = ?

2. How many are 6 × 100? 8 × 100?

Can you say this table of hundreds?

100	100	100	100	100	100	100	100	100
×1	×2	×3	×4	×5	×6	×7	×8	×9
100	200	300	400	500	600	700	800	900

You multiply hundreds like ones.

3. How many are 2 × 300? 3 × 200? 4 × 200?

In Ex. 4 to 6, cover "hundreds." Say the products. Uncover "hundreds" and say the products.

4. 3 × 2 hundreds 5. 2 × 3 hundreds 6. 4 × 2 hundreds

Do the same with the zeros in Ex. 7 to 10.

7. 2 × 300 8. 3 × 200 9. 2 × 200 10. 2 × 400

Say the products for rows 11 to 14.

	a	b	c	d
11.	2 × 4 tens	2 × 40	2 × 4 hundreds	2 × 400
12.	3 × 2 tens	3 × 20	3 × 2 hundreds	3 × 200
13.	2 × 2 tens	2 × 20	2 × 2 hundreds	2 × 200
14.	4 × 2 tens	4 × 20	4 × 2 hundreds	4 × 200

15. To find the product of 2 × 431, as in the box, multiply ones, then tens, then hundreds. Explain each part.

Hundreds	Tens	Ones
4	3	1
	×	2
8	6	2

16. Explain the work in Ex. a, below.

a.	b.	c.	d.
420	$2.03	$1.22	$3.02
×2	×3	×4	×3
840	$6.09	$4.88	$9.05

17. We multiply money numbers like other numbers, making cents have two places. Explain Ex. b and c, above.

18. To check multiplication, do an example twice. Check the work in Ex. d, above, for mistakes.

[W]

Copy and multiply as in the box above.

	a	b	c
19.	2 × 343	3 × $3.23	4 × $2.21
20.	4 × 212	4 × $2.11	3 × $2.13
21.	3 × 322	2 × $2.32	3 × $1.21
22.	2 × 324	3 × $1.31	4 × $1.12

Multiplication Test 2

[W]

Copy and multiply. Do each example twice.

	a	b	c	d
1.	2 × 43	2 × 54	3 × 102	2 × $0.94
2.	4 × 20	6 × 31	8 × 110	5 × $1.01
3.	3 × 32	9 × 40	4 × 122	9 × $0.40
4.	2 × 34	3 × 73	2 × 314	6 × $1.10
5.	3 × 21	5 × 41	3 × 232	4 × $0.82

➤ **Extra Practice.** Work Sets 19 and 20.

Multiplication Problems

[W]

Write just the answers for problems 1 to 14.

1. In order to give 4 cookies to each of her 3 friends, how many cookies must Ruth bake?

2. Each time she rolls out the dough, Ruth cuts out 8 cookies. In 4 times, how many cookies can she cut out?

3. For sweeping the walk, Sam gets 5¢. One week he did it 4 times. How much did he earn?

4. It takes Sam 9 min. to sweep the walk. To sweep it 4 times, how many minutes did it take?

5. It is 12 blocks around the park. To ride around 3 times, how many blocks would you have to ride?

How many pieces of candy are there in 3 bags if each bag has

6. 4 pieces? **7.** 7 pieces? **8.** 11 pieces?

How much money must you spend in order to buy

9. three 8¢ candy bars?
10. six 3¢ pencils?
11. eight 2¢ stamps?
12. two 7¢ oranges?
13. two 12¢ balloons?
14. five 4¢ toys?

Halloween Masks for Sale

Carrying tens in multiplication [O]

1. Here are 14 masks in each pile, or _?_ masks in all.

14 = 10 + 4. You can multiply the parts and add the products. 7 × 4 = 28; 7 × 10 = 70; 28 + 70 = 98.

The box below shows the short way to multiply.

14
×7
98

Ones: *Think*, "28" (7 × 4). Write "8" in one's place in the product and carry the 2 tens.

Tens: *Think*, "7" (7 × 1), "9" (7 tens plus the 2 tens carried). Write "9" in ten's place.

Explain the work in Ex. 2 and 3. Check Ex. 4 to 6.

2.	3.	4.	5.	6.
36	$1.25	14	$0.47	$1.03
×2	×3	×6	×2	×9
72	$3.75	84	$0.84	$9.07

In multiplying, you carry when the product of the ones is 10 or more.

Multiplication Test 3

[W]

Copy and multiply. Check your work.

	a	b	c	d
1.	7 × 14	5 × 104	7 × $0.13	5 × $1.13
2.	4 × 24	2 × 438	4 × $1.05	6 × $0.03
3.	8 × 12	3 × 319	2 × $0.49	4 × $0.21

Practice for Carrying in Multiplication

[O]

To get practice for carrying in multiplication, say answers for the examples in rows 1 and 2. For Ex. 1a *think*, "Three 5's are 15, and 2 are 17."

	a	b	c	d
1.	3 × 5 + 2	2 × 4 + 1	4 × 5 + 2	8 × 4 + 3
2.	6 × 3 + 1	5 × 4 + 2	9 × 3 + 3	7 × 4 + 1

Write just the answers for these:

[W]

3.	2 × 6 + 1	7 × 3 + 2	2 × 9 + 1	3 × 7 + 2
4.	5 × 3 + 2	2 × 7 + 1	4 × 7 + 3	6 × 2 + 2
5.	3 × 4 + 1	9 × 2 + 3	2 × 5 + 1	4 × 9 + 3
6.	3 × 6 + 1	4 × 8 + 2	7 × 2 + 1	4 × 6 + 2
7.	8 × 2 + 1	3 × 8 + 2	6 × 4 + 2	5 × 2 + 2
8.	9 × 4 + 3	8 × 3 + 2	3 × 9 + 2	2 × 8 + 1

Right or Wrong? Why?

[O]

Is there anything wrong in Ex. 1 to 5 below? Explain.

1. Jane's product for 3 × 203 was 69.

2. From 7 P.M. to 12 M. is 5 hours.

3. Ruth cut a long ribbon into fourths and used the largest fourth to make a hair ribbon.

4. Instead of adding to get the total in the example 3 + 4 + 5, Ann multiplied 4 by 3.

5. Sam's answer for 3 × 4 + 2 was 18.

Carrying Hundreds in Multiplication

[O]

1. Joe delivers 130 papers a day. In a 6-day week, how many does he deliver? Study box **A.**

The product in ten's column is 18 But 18 tens is 1 hundred and 8 tens. We write "8" in ten's place and carry the 1 (hundred). Explain the product figure 7.

A

$$\begin{array}{r} 130 \\ \times 6 \\ \hline 780 \end{array}$$

Check the work in Ex. 2 to 6 for mistakes.

2. $\begin{array}{r} 240 \\ \times 4 \\ \hline 960 \end{array}$ **3.** $\begin{array}{r} \$1.51 \\ \times 3 \\ \hline \$3.53 \end{array}$ **4.** $\begin{array}{r} 232 \\ \times 4 \\ \hline 928 \end{array}$ **5.** $\begin{array}{r} \$1.40 \\ \times 7 \\ \hline \$9.80 \end{array}$ **6.** $\begin{array}{r} \$2.83 \\ \times 3 \\ \hline \$7.49 \end{array}$

When the product in the ten's column means 10 tens or more, you carry hundreds.

In box **B,** you must carry both tens and hundreds.

Ones: 6 × 4 = 24. Write "_?_" and carry _?_ (tens).

Tens: 6 × 3 = 18, and 2 (the carried tens) are 20. Write "0" and carry 2 _?_.

Hundreds: Explain the 8 in the product.

B

$$\begin{array}{r} 134 \\ \times 6 \\ \hline 804 \end{array}$$

[W]

Check Ex. 7 to 11. Copy and multiply Ex. 7 to 17.

7. $\begin{array}{r} 193 \\ \times 2 \\ \hline 386 \end{array}$ **8.** $\begin{array}{r} \$2.41 \\ \times 4 \\ \hline \$9.64 \end{array}$ **9.** $\begin{array}{r} \$0.43 \\ \times 9 \\ \hline \$3.67 \end{array}$ **10.** $\begin{array}{r} 265 \\ \times 3 \\ \hline 795 \end{array}$ **11.** $\begin{array}{r} \$1.14 \\ \times 8 \\ \hline \$8.82 \end{array}$

12. 3 × 283 **14.** 4 × 218 **16.** 7 × $1.32

13. 6 × 141 **15.** 8 × $0.43 **17.** 2 × $4.79

Sometimes you carry both tens and hundreds.

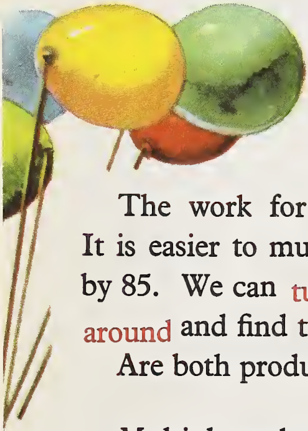
Multiplication Test 4

[W]

Copy and multiply. Check by multiplying again.

	a	b	c	d	e	f	g
1.	474 ×2	131 ×4	120 ×5	121 ×6	183 ×3	$0.40 ×8	$3.92 ×2
2.	89 ×3	76 ×4	67 ×3	356 ×2	123 ×8	$1.43 ×7	$0.23 ×9
3.	395 ×2	239 ×4	124 ×7	254 ×3	104 ×9	$4.87 ×2	$2.38 ×3

Extra Practice. For help in row 1, study page 69. Then work Sets 21 and 22. For rows 2 and 3, use pages 67 and 69 and Set 23. Then take the test again.



Turning Numbers Around

[O]

1. How many balloons are needed to give 2 to each of 85 children?

The work for finding eighty-five 2's is in box **A**. It is easier to multiply by 2 than by 85. We can turn the numbers around and find two 85's (box **B**). Are both products the same?

A	B
2 ×85 170	85 ×2 170

[W]

Multiply each time by the smaller number.

2. 2 × 63
3. 3 × 33
4. 112 × 6
5. 96 × 4
6. 5 × 142
7. 114 × 8
8. 296 × 3
9. 4 × $0.89
10. 123 × 7

We may multiply by the smaller number.

Our Grade Club Meets

Completing A., S., M. problems [O]

Finish each problem by asking a good question. Tell how you would solve your problem.

1. The room in which our club meets has 4 rows of seats with 8 seats in each row.

What might you want to know? What would be a good question to ask in order to find out?

2. This year our club has 30 members. At the first meeting 4 members were not there.

3. One time 12 of the members came in together. Later, a group of 3 came in and then a group of 4.

4. Betty asked members to bring 2 books each for the library. Nine members said they would.

5. The treasurer said that our grade club had $9.25; but that there were bills for $2.65.

6. At each of the 6 meetings a year we have a program. Four children take part in each program.

Airplane Problems

Differentiating A., S., and M. [W]

Write your work for problems 1 to 5. Check.

1. Mr. Smith's plane ticket cost $9.75. How much more than $5.00 did he pay?

2. The morning plane carried 4 children, 18 men, and 16 women. How many people was that in all?

3. The plane flies 240 miles between Carson and Weems. How many miles would it fly in 4 trips between those cities?

4. One plane made a trip in 158 minutes. The trip by train takes 715 minutes, or _?_ minutes longer.

5. Mr. Field makes a 180-mile trip 4 times a month. How far does he fly each month?

Multiplication Test 5

[W]

Copy and find the products. Check your work.

	a	b	c	d	e	f
1.	34 ×2	83 ×3	31 ×8	180 ×4	$1.01 ×9	$0.24 ×7
2.	209 ×3	123 ×6	230 ×3	134 ×5	$2.75 ×2	$2.09 ×4
3.	78 ×4	89 ×2	43 ×9	164 ×3	$0.43 ×8	$0.61 ×2

Extra Practice. If you need help, work Sets 19 to 23.

Written Practice

A., S., M.

Copy, work, and check. Watch the signs!

1. 501 −89	**2.** 89 ×3	**3.** 800 −73	**4.** \$5.98 +2.67
5. 562 −108	**6.** 132 ×5	**7.** 198 ×4	**8.** \$7.07 −4.69
9. 460 +290	**10.** 278 −98	**11.** 611 −327	**12.** \$0.42 ×6
13. 409 ×2	**14.** 649 +178	**15.** 157 ×4	**16.** \$6.11 −2.37

17. 558 + 343 + 68

18. 348 + 532 + 16

19. 87 + 289 + 316

20. 24 + 37 + 46 + 38

21. 53 + 657 + 29 + 206

22. 7 + 6 + 9 + 8 + 7

Test Yourself 2

[W]

Copy, work, and check. Work carefully!

1. 209 × 3

2. 601 − 258

3. 8 × 104

4. 379 + 571

5. 708 − 602

6. \$2.28 − \$1.39

7. 465 + 398

8. \$4.62 + \$0.39

9. 43 × 8

10. 4 × 189

11. 7 × 124

12. 200 − 53

13. 34 × 6

14. 23 × 5

15. 3 × \$0.78

16. 243 × 2

17. 2 times 489

18. 102 × 9

19. 3 × \$2.79

20. 685 + 98

21. \$6.66 from \$8.33

22. \$7.94 plus \$0.38

23. 135 minus 96

24. 7 × \$1.34

Understanding Division (D.)

Measurement D. [O]

1. How many 2's are there in 6? Use the picture to find out.

We can subtract 2's from 6:

$6 - 2 = 4, \quad 4 - 2 = 2, \quad 2 - 2 = 0.$

Finding how many 2's in 6 is dividing. Ways to write the division facts are:

$$6 \div 2 = 3 \quad \text{and} \quad \begin{array}{r} 3 \\ 2\overline{)6} \end{array}$$

The sign ÷ means "divided by."

For both ways we say, "2's in 6 = 3" or "6 divided by 2 is 3." 2 is called the divisor and 3, the quotient.

2. If 3 prizes are given for each race, 12 prizes will do for _?_ races.

Find out by using the rows of X's in box A. How many 3's in 12?

On the board, write in two ways the division example and its quotient.

Prove the answer by showing all the work, as in box B. Explain.

3. $10 \div 5 = ?$ On the board make 10 X's with 5 in a row. Do the things you did in Ex. 2.

A

X X X
X X X
X X X
X X X

B

$$\begin{array}{r l} 4 & \leftarrow \text{quotient} \\ 3\overline{)12} & \\ \uparrow\ 12 & (4 \times 3) \\ \overline{0} & \\ & \text{divisor} \end{array}$$

[W]

Make X's to find quotients for Ex. 4 to 9. Prove your work as in box B.

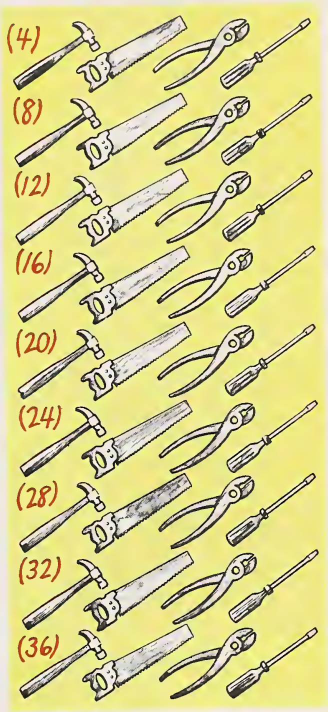
4. $3\overline{)9}$ 5. $4\overline{)8}$ 6. $4\overline{)12}$ 7. $3\overline{)15}$ 8. $2\overline{)12}$ 9. $3\overline{)18}$

To find how many equal groups, you divide.

Division Facts with the Divisor 4

[O]

The first row in the picture shows a set of 4 tools. The picture shows 9 sets of tools, or _?_ tools in all.



1. How many sets of 4 tools are there in 28 tools?

$28 \div 4 = ?$

In the picture, cover all rows below 28 and count the other sets. Are there seven 4's in 28?

2. How many sets of 4 tools will 12 tools make? Cover all but the first 12 tools and count rows.

$12 \div 4 = ?$

Use the rows in the picture to find the quotients.

	a	**b**	**c**
3.	$4\overline{)8}$	$4\overline{)24}$	$4\overline{)32}$
4.	$4\overline{)36}$	$4\overline{)20}$	$4\overline{)16}$

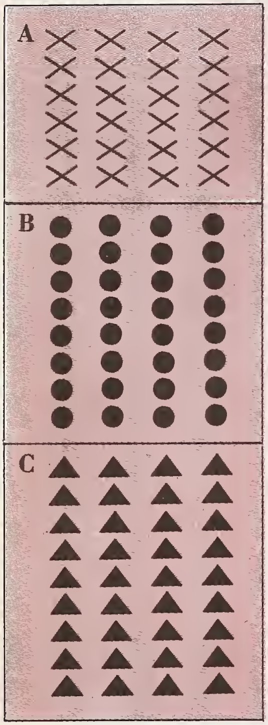
Say all the division facts that have 4 as divisor. Use the table below and say, "4's in 4 = 1, 4's in 8 = 2," and so on.

Division Facts, Divisor 4

1	2	3	4	5	6	7	8	9
$4\overline{)4}$	$4\overline{)8}$	$4\overline{)12}$	$4\overline{)16}$	$4\overline{)20}$	$4\overline{)24}$	$4\overline{)28}$	$4\overline{)32}$	$4\overline{)36}$

Division Facts with the Quotient 4

Pairs of D. facts **[O]**



1. It takes 6 boards to make a box, so 24 boards will make _?_ boxes.

Use the columns of ×'s in box **A**.

Subtract 6's from 24. $24 \div 6 = ?$

2. Box **A** shows another D. example. Use the rows of crosses. $24 \div 4 = ?$

3. Use columns, then rows, to find the two D. facts in boxes **B** and **C**.

4. What other D. fact goes with

a. $12 \div 3$? **b.** $20 \div 5$? **c.** $8 \div 2$?

Every D. fact but one like $16 \div 4 = 4$ goes with another to make a pair. If you know one fact, you know the other.

[W]

Copy Ex. 5 to 12. Write each quotient and the other D. fact that goes with it.

5. $12 \div 3$

6. $12 \div 2$

7. $36 \div 9$

8. $20 \div 5$

9. $4\overline{)24}$

10. $4\overline{)28}$

11. $4\overline{)12}$

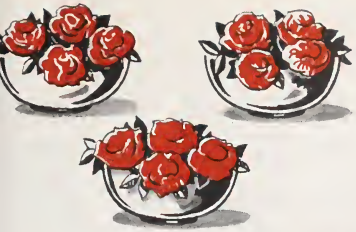
12. $5\overline{)20}$

Extra Practice. Work Set 24.

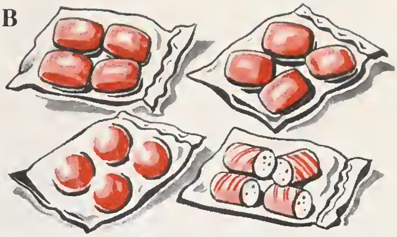
Say, "1's in 4 = 4, 2's in 8 = 4," and so on.

Division Facts, Quotient 4

$\begin{array}{r}4\\1\overline{)4}\end{array}$ $\begin{array}{r}4\\2\overline{)8}\end{array}$ $\begin{array}{r}4\\3\overline{)12}\end{array}$ $\begin{array}{r}4\\4\overline{)16}\end{array}$ $\begin{array}{r}4\\5\overline{)20}\end{array}$ $\begin{array}{r}4\\6\overline{)24}\end{array}$ $\begin{array}{r}4\\7\overline{)28}\end{array}$ $\begin{array}{r}4\\8\overline{)32}\end{array}$ $\begin{array}{r}4\\9\overline{)36}\end{array}$



B



Equal Parts of a Group

Naming with fractions [O]

In the pictures the parts of each big group are equal, so we can name each part and tell its size with a fraction.

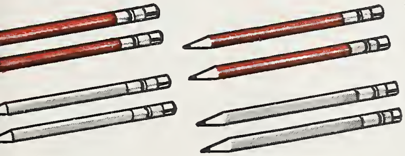
1. The flowers in picture **A** are in _?_ equal groups. What fraction names each group and tells its size?

2. How many are $\frac{1}{3}$ of 12 flowers? $\frac{1}{3}$ of 12 = ?

3. What fraction names each of the equal parts of the 16 candies in picture **B**?

4. How many are $\frac{1}{4}$ of the 16 candies? $\frac{1}{4}$ of 16 = ?

In Ex. 5 to 10, tell the fraction name for each equal part. Then say the number story. For Ex. 5 say, "Each equal part is $\frac{1}{4}$. $\frac{1}{4}$ of 8 pencils = 2 pencils."



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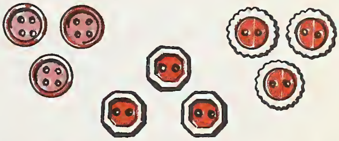

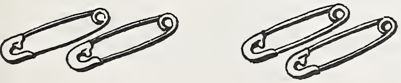

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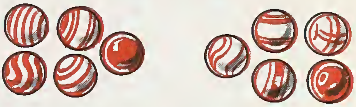

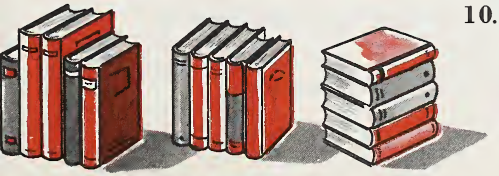

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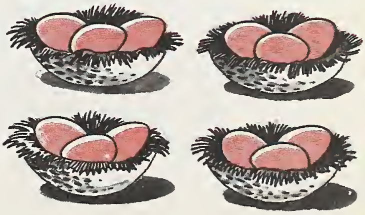
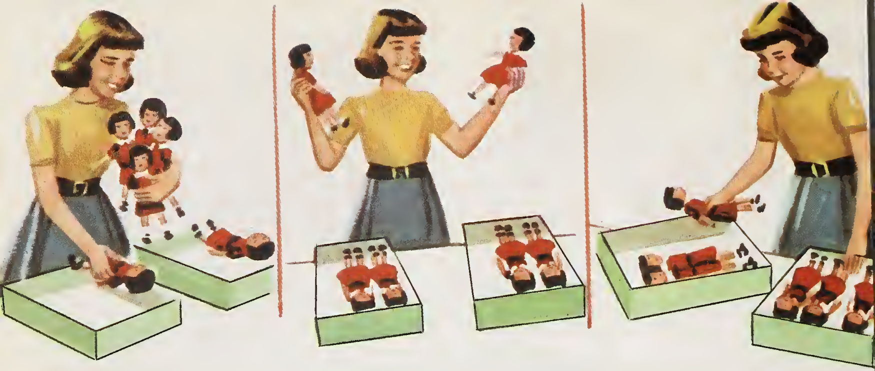




Another Kind of Division

Fractional-part D. [O]

1. Mary gave Ann $\frac{1}{2}$ of her 6 dolls. Use the pictures to explain how Mary found $\frac{1}{2}$ of 6 dolls.

To find $\frac{1}{2}$ of 6, you may write the D. fact in any of the three ways in the box.

a. $\frac{1}{2}$ of $6 = 3$

b. $6 \div 2 = 3$

c. $2\overline{)6}$ with quotient 3

For **a** say, "One half of six is three." Read **b** and **c**.

2. Mary tied together $\frac{1}{3}$ of her 12 doll dresses with a ribbon. How many dresses were in the bundle?

Find $\frac{1}{3}$ of 12 by making marks on the board until you have divided 12 into 3 equal groups.

Write the division fact three ways. Read them.

3. Mary put 16 doll hats in 4 equal piles. How many doll hats did she put in each pile?

Find $\frac{1}{4}$ of 16 by dividing 16 marks on the board.

Write the division fact three ways. Read them.

To find how many in each equal part or equal share of a group, you divide. The quotient tells how many there are in each equal part.

[W]

Copy and write quotients for Ex. 4 to 11. If you need to, find quotients by using buttons or by making marks.

4. $\frac{1}{2}$ of 8 books = ?

5. $\frac{1}{3}$ of 9 birds = ?

6. $\frac{1}{4}$ of 8 cakes = ?

7. $\frac{1}{2}$ of 6 dogs = ?

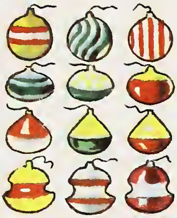
8. $\frac{1}{2}$ of 14 pencils = ?

9. $\frac{1}{2}$ of 10 marbles = ?

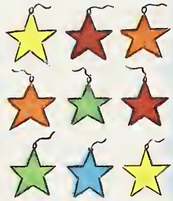
10. $\frac{1}{3}$ of 15 flowers = ?

11. $\frac{1}{4}$ of 12 candles = ?

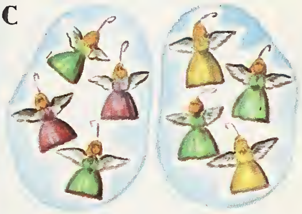
A



B



C



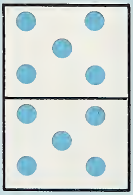
[O]

Picture **A** shows 12 Christmas balls divided into 4 equal rows of 3 balls each. Each $\frac{1}{4}$ of 12 = 3.

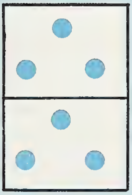
12 and 13. Give sentences like the ones above for picture **A** to tell what is shown in **B**; in **C**.

14 to 17. Give sentences of the same kind for dot pictures **D** to **G**.

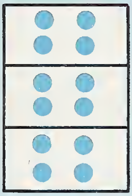
D



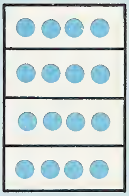
E



F



G



For Ex. 18 to 21, draw on the board dot pictures like **D** to **G** above. For each, give sentences like those for **A**.

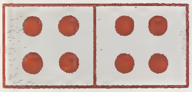
18. $\frac{1}{3}$ of 6 **19.** $\frac{1}{4}$ of 8 **20.** $\frac{1}{2}$ of 12 **21.** $\frac{1}{3}$ of 18

Problems about Skating

Two types of division [O]

You divide when you want to know
a. how many equal groups there are.
b. how many there are in each equal part or equal share of a group.

1. Eight children were skating in 2 equal groups.



How many children were in each group? Is the division question, "How many are there in each $\frac{1}{2}$ of 8?"

2. In another place, 15 children were skating, 5 in each group. How many groups did that make?

Is the division question, "How many 5's are in 15?"

What is the division question in Ex. 3 and 4?

3. Sam found 12 sticks for making a fire. He started the fire with only $\frac{1}{3}$ of them. How many of the sticks did Sam use to start the fire?

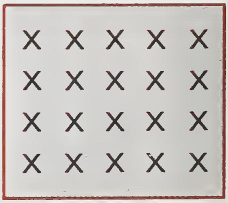
4. After getting warm, 10 children went out to skate, 2 to a group. How many groups did that make?

The Whole Story in M. and D.

[O]

1. Find these four facts in the box:

$4 \times 5 = 20$ $20 \div 5 = 4$
$5 \times 4 = 20$ $20 \div 4 = 5$



These four facts make the whole story in M. and D. about 4, 5, and 20.

2. Say three other facts that go with each of these:

a. $3 \times 9 = 27$ **b.** $12 \div 2 = 6$ **c.** $28 \div 7 = 4$

Every M. or D. fact, except one like $4 \times 4 = 16$ or $9 \div 3 = 3$, goes with three other facts to make a whole story in multiplication and division.

[W]

Write the whole stories in M. and D. about

3. 3, 4, and 12.
4. 6, 4, and 24.
5. 3, 6, and 18.
6. 4, 8, and 32.
7. 4, 9, and 36.
8. 3, 8, and 24.

How Well Do You Remember How to Divide?

Inventory [W]

You haven't had some of these division examples since last year, but try them just for fun.

1. $18 \div 3$
2. $16 \div 2$
3. $15 \div 3$
4. $18 \div 2$
5. $\frac{1}{2}$ of 14
6. $\frac{1}{4}$ of 12
7. $\frac{1}{3}$ of 21
8. $\frac{1}{2}$ of 12
9. $3\overline{)27}$
10. $2\overline{)10}$
11. $8\overline{)24}$
12. $7\overline{)21}$
13. $4\overline{)20}$
14. $6\overline{)24}$
15. $8\overline{)32}$
16. $4\overline{)36}$
17. $2\overline{)82}$
18. $4\overline{)48}$
19. $3\overline{)39}$
20. $2\overline{)64}$
21. $3\overline{)96}$
22. $2\overline{)48}$
23. $5\overline{)155}$
24. $2\overline{)168}$
25. $4\overline{)128}$
26. $6\overline{)186}$
27. $3\overline{)219}$
28. $8\overline{)248}$

If you made mistakes in the examples above, read the helps below to find why you made the mistakes.

To divide quickly and correctly, you must

a. know all the division facts (D. facts).

b. start to divide at the left.

c. write quotient figures in their correct places.

d. know how to check (by multiplying the quotient by the divisor).

Division Test 1

D. Facts [W]

Write just the quotients on folded paper.

	a	b	c	d	e	f	g
1.	$2\overline{)8}$	$1\overline{)4}$	$3\overline{)27}$	$4\overline{)20}$	$2\overline{)4}$	$5\overline{)10}$	$2\overline{)12}$
2.	$2\overline{)16}$	$4\overline{)24}$	$9\overline{)18}$	$2\overline{)6}$	$3\overline{)15}$	$4\overline{)4}$	$4\overline{)8}$
3.	$3\overline{)9}$	$6\overline{)12}$	$5\overline{)20}$	$3\overline{)6}$	$8\overline{)24}$	$3\overline{)12}$	$8\overline{)32}$
4.	$5\overline{)15}$	$9\overline{)27}$	$8\overline{)16}$	$4\overline{)32}$	$2\overline{)10}$	$7\overline{)14}$	$9\overline{)36}$
5.	$4\overline{)12}$	$6\overline{)18}$	$3\overline{)18}$	$2\overline{)14}$	$7\overline{)28}$	$3\overline{)24}$	$1\overline{)3}$
6.	$3\overline{)21}$	$4\overline{)28}$	$6\overline{)24}$	$4\overline{)36}$	$4\overline{)16}$	$2\overline{)18}$	$7\overline{)21}$

Were some of the division facts hard for you? Study the helpers below and then take Division Test 1 again.

Helpers for Division Facts

[O]

1. Sometimes you can think quotients for hard division facts by using whole stories.

Say three facts of a whole story in M. and D. to help you with each example in box **A**.

2. Tell the quotients for box **B**.

Then finish this rule: When you divide by an equal number, the quotient is always _?_.

3. Tell the quotients for box **C**.

Then finish this rule: When you divide a number by 1, the quotient is always _?_.

Make study cards for hard division facts.

A

$27 \div 3$

$24 \div 6$

$18 \div 2$

B

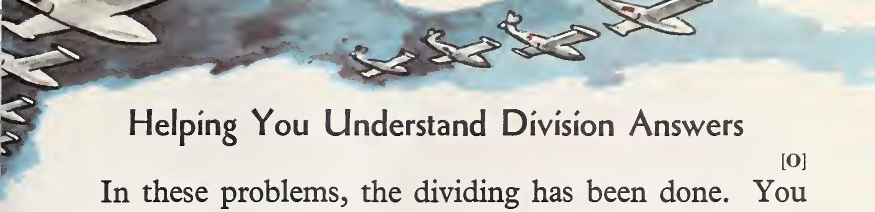
$4 \div 4$

$3 \div 3$

C

$2 \div 1$

$3 \div 1$



Helping You Understand Division Answers

[O]

In these problems, the dividing has been done. You are to decide what the quotient tells.

1. Tom read a story about 20 planes, 4 in each group. When he divided to find how many 4's in 20, his quotient was 5. This means 5 what?

Was Tom finding how many groups of 4 planes each? yes

If so, his answer would be "5 groups."

Was Tom finding how many planes in each of 4 groups? NO If so, his answer would be "5 planes."

Which answer is correct? 5 groups

2. Another story told about 15 planes in 3 equal groups. When you find $\frac{1}{3}$ of 15, the quotient is 5.

(5 planes or 5 groups?) 5 planes

3. Five girls shared equally 20 paper dolls.

$\frac{1}{5}$ of 20 = 4. (4 paper dolls or 4 groups?) 4 paper dolls

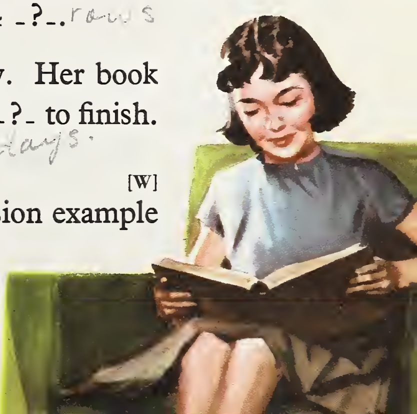
4. Betty gave paper dolls to each of her 4 friends. She gave away 36 paper dolls. So each one had 9 -?-. paper dolls

5. Sixteen cars were put in rows, with 4 cars in each row. There must have been 4 -?-. rows

6. Mary read 4 pages a day. Her book had 32 pages. It took Mary 8 -?- to finish. days.

[W]

Write in two ways the division example for each problem above.



Division with a Remainder

Using table numbers [O]

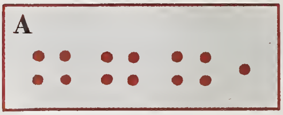
1. Ann had 13 pancakes. She has put 4 on each plate. How many plates has she filled? How many pancakes are left over?

Explain how to find the answer by

a. using the picture.

b. using dots (box A).

c. subtracting (13 − 4 = 9, 9 − 4 = 5, 5 − 4 = ?).
13 = three 4's and _?_ left over.



d. using a division fact you know. Study the table on page 75. $4\overline{)13}$ is not in this table but $4\overline{)12}$ is, so, for 13 ÷ 4, the number in the table that helps you is 12. We can call 12 our table number

Explain box B. The R1 beside the quotient means "remainder, 1."

B

$$\begin{array}{r} 3,\ \text{R}1 \\ 4\overline{)13} \\ \underline{12}\ (3 \times 4) \\ 1 \end{array}$$

2. Can Ann put $\frac{1}{4}$ of 11 cents into each of 4 banks? $\frac{1}{4}$ of 11 = ?

Use marks. Then explain box C.

C

$$\begin{array}{r} 2,\ \text{R}3 \\ 4\overline{)11} \\ \underline{8}\ (2 \times 4) \\ 3 \end{array}$$

Give the table number for

3. 18 ÷ 4.
4. 17 ÷ 4.
5. 15 ÷ 4.

Dividing by 4	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**32**	**36**
	5	9	13	17	21	25	29	33	37
	6	10	14	18	22	26	30	34	38
	7	11	15	19	23	27	31	35	39

6. We call the numbers, in the top row above, the table numbers for 4. Why?

7. For 30 ÷ 4, find 30 in the numbers at the top of the page. Tell the table number that helps you divide.

8. Tell the table number for 5 ÷ 4; 26 ÷ 4; 19 ÷ 4; 34 ÷ 4; 15 ÷ 4; 10 ÷ 4; 23 ÷ 4.

[W]

9. Copy and finish the list of table numbers and the numbers that go with them for dividing by 2 and by 3.

Dividing by 2	**2**	**4**	**6**	**?**	**?**	**?**	**?**	**?**	**18**
	3	5	?	?	?	?	?	?	?

Dividing by 3	**3**	**6**	**?**	**?**	**?**	**?**	**?**	**?**	**?**
	4	?	10	?	?	?	?	?	?
	5	8	?	?	?	?	?	?	?

Copy and work as in boxes **B** and **C**, page 84. For Ex. 10a, the table number that helps you to divide is 6. *Think*, "2's in 7 = 3, and 1 left over."

	a	b	c	d	e	f	g
10.	$2\overline{)7}$	$2\overline{)15}$	$4\overline{)26}$	$4\overline{)14}$	$3\overline{)29}$	$4\overline{)23}$	$4\overline{)31}$
11.	$3\overline{)11}$	$4\overline{)34}$	$3\overline{)23}$	$2\overline{)17}$	$4\overline{)35}$	$2\overline{)13}$	$4\overline{)25}$
12.	$3\overline{)17}$	$2\overline{)11}$	$4\overline{)18}$	$4\overline{)38}$	$3\overline{)19}$	$4\overline{)21}$	$3\overline{)22}$
13.	$4\overline{)33}$	$4\overline{)15}$	$2\overline{)19}$	$3\overline{)26}$	$4\overline{)27}$	$3\overline{)16}$	$3\overline{)10}$

More Table Numbers

[W]

1. For dividing by 5, you already know the first table numbers 5, 10, 15, and 20. Copy and finish the work at the right.

Dividing by 5	5	10	15	20
	6	11	16	21
	7	12	?	?
	8	?	?	?
	9	?	?	24

2. For dividing by 6 you know the first table numbers 6, 12, 18, 24. Write these table numbers and the numbers to go with them to 29.

3. Do the same for dividing by 7 through 34. (You know table numbers 7, 14, 21, 28.)

4. Do the same for dividing by 8 through the numbers to 39. (You know table numbers 8, 16, 24, 32.)

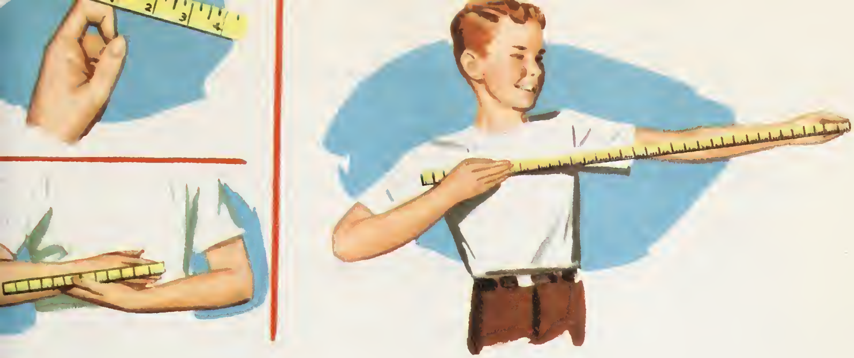
5. Do the same for dividing by 9 through the numbers to 44. (You know table numbers 9, 18, 27, 36.)

On folded paper write the quotients with remainders. Use the tables you made in Ex. 1 to 5 only if you have to.

	a	b	c	d	e	f
6.	5)12	6)20	9)30	8)19	6)26	8)25
7.	7)10	8)10	7)23	9)39	7)17	7)29
8.	9)21	9)19	8)26	5)16	9)28	9)37
9.	6)14	7)15	9)29	6)19	8)34	5)18
10.	8)18	9)20	6)25	8)27	7)30	9)12

[O]

Turn to page 85. Say the quotients and the remainders for the examples in rows 10 to 13.



How Long? How Wide? How Tall?

Inventory [W]

Have you ever measured with a finger inch? an arm foot? an arm yard?

Measure as Tom is doing above so you will know how long your finger inch, arm foot, and arm yard are.

Think of these measures as you write the missing words.

1. The circus elephant was 8 -?- tall.
2. My puppy is 13 -?- tall.
3. Our ladder at home is 2 -?- long.
4. My bedroom is 12 -?- wide.
5. My big pencil is 9 -?- long.
6. Our front door is about 1 -?- wide.
7. A dress takes 3 -?- of cloth.
8. Our little apple tree is 10 -?- high.
9. Most tables are more than 18 -?- high.
10. Our book shelf is about 3 -?- long.
11. $\frac{1}{4}$ inch is one of -?- equal parts of an inch.

12. 1 yd. = 36 -?-.
13. 1 ft. = $\frac{1}{3}$ -?-.
14. 12 in. = 1 -?-.
15. 3 ft. = 1 -?-.

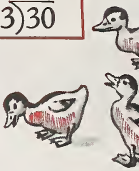
Division with Two-Place Quotients

Even D.; 2- and 3-place dividends [O]

1. Jack's share of 30 baby chicks was a third. How many did he get? $\frac{1}{3}$ of 30 = 30 ÷ 3 (box **A**). 30 = 3 tens. 3 tens ÷ 3 = 1 ten, or 10.

A

$$\begin{array}{r} ?? \\ 3\overline{)30} \end{array}$$



2. How many are $\frac{1}{2}$ of 40? $\frac{1}{4}$ of 80? $\frac{1}{3}$ of 60?

You divide tens like ones.

3. There were 96 baby ducks. What would Jack's share be if he got one third? $\frac{1}{3}$ of 96 = 96 ÷ 3.

B

$$\begin{array}{r} 30 \\ 3\overline{)90} \end{array} \qquad \begin{array}{r} 2 \\ 3\overline{)6} \end{array}$$

30 + 2 = 32

$\frac{1}{3}$ of 96 = 32

C

$$\begin{array}{rrl} \text{Tens} & \text{Ones} & \\ 3 & 2 & \\ 3\overline{)9} & \overline{6} & \\ 9 & 0 & (30 \times 3) \\ \hline & 6 & \\ & 6 & (2 \times 3) \\ \hline & 0 & \end{array}$$

96 = 90 + 6, so we can divide each part by 3 (box **B**).

Box **C** shows a better way.

Divide tens: *Think*, "9 ÷ 3 = 3." Write "3" in ten's place in the quotient. Multiply 3 tens × 3 and write "90" under 96. Subtract (96 − 90 = 6).

Divide ones. Tell how.

4. Explain Ex. **D**. Do you first divide tens or hundreds? Why?

D

$$\begin{array}{rrl} 5 & 3 & \\ 3\overline{)15} & \overline{9} & \\ 15 & 0 & (50 \times 3) \\ \hline & 9 & \\ & 9 & (3 \times 3) \\ \hline & 0 & \end{array}$$

[W]

Copy and divide Ex. 5 to 12.

5. $3\overline{)69}$
6. $2\overline{)148}$
7. $\frac{1}{7}$ of 287
8. $\frac{1}{8}$ of 168
9. $4\overline{)84}$
10. $8\overline{)248}$
11. $\frac{1}{2}$ of 72
12. $\frac{1}{3}$ of 252

Farmer Brown's Sheep

First D. uneven; check by M. [O]

1. Farmer Brown has 72 sheep. When he puts the same number of sheep in each of 3 pens, how many sheep are in each pen? 72 ÷ 3 = ?

72 = 7 tens and 2 ones (see box).

Divide the tens: 7 ÷ 3 = ? The table number is 6. 6 ÷ 3 = 2. Where do we write the 2?

Multiply and subtract.

Divide the ones, and finish.

2. The quotient means that there are 24 sheep in each of 3 pens. We can check the quotient by finding if three 24's equal 72. Explain.

$$\begin{array}{r|ll} \text{Tens} & \text{Ones} & \\ 2 & 4 & \\ 3\overline{)7} & \overline{2} & \\ 6 & 0 & (20 \times 3) \\ \hline 1 & 2 & \\ 1 & 2 & (4 \times 3) \\ \hline & 0 & \end{array}$$

Check

$$\begin{array}{r} 24 \\ \underline{\times 3} \\ 72 \end{array}$$

To check division that has no remainder, you multiply the quotient by the divisor. The product should be the number you divided.

Explain why these quotient figures are in ten's place:

3. $\begin{array}{r} 2 \\ 3\overline{)84} \end{array}$ **4.** $\begin{array}{r} 4 \\ 2\overline{)92} \end{array}$ **5.** $\begin{array}{r} 1 \\ 5\overline{)70} \end{array}$ **6.** $\begin{array}{r} 1 \\ 8\overline{)96} \end{array}$

7. $\begin{array}{r} 6 \\ 3\overline{)207} \end{array}$ **8.** $\begin{array}{r} 3 \\ 4\overline{)136} \end{array}$ **9.** $\begin{array}{r} 6 \\ 2\overline{)132} \end{array}$ **10.** $\begin{array}{r} 4 \\ 6\overline{)252} \end{array}$

[W]

Copy and divide. Check your work by multiplying.

11. $2\overline{)98}$ **12.** $4\overline{)212}$ **13.** $3\overline{)252}$ **14.** $4\overline{)72}$

15. $3\overline{)87}$ **16.** $3\overline{)264}$ **17.** $2\overline{)58}$ **18.** $3\overline{)288}$

Extra Practice. Work Set 27.

Three-Place Quotients

3-place dividends [O]

1. Each of these bags holds the same amount of chick feed. How many pounds are in a bag?

$\frac{1}{4}$ of 400 = ?   400 ÷ 4 = ?

4 hundreds ÷ 4 = 1 hundred, or 100.

2. 600 ÷ 2 = ?   3. $\frac{1}{4}$ of 800 = ?

You divide hundreds like ones.

A

$$\begin{array}{r} 400 \\ 2\overline{)800} \end{array} \qquad \begin{array}{r} 20 \\ 2\overline{)40} \end{array} \qquad \begin{array}{r} 3 \\ 2\overline{)6} \end{array}$$

400 + 20 + 3 = 423

$\frac{1}{2}$ of 846 = 423

B

$$\begin{array}{r|c|c|c|l}
 & \text{Hundreds} & \text{Tens} & \text{Ones} & \\
 & 4 & 2 & 3 & \\
2) & 8 & 4 & 6 & \\
 & 8 & 0 & 0 & (400 \times 2) \\
 & & 4 & 6 & \\
 & & 4 & 0 & (20 \times 2) \\
 & & & 6 & \\
 & & & 6 & (3 \times 2) \\
 & & & 0 &
\end{array}$$

4. How many are $\frac{1}{2}$ of 846 children? $\frac{1}{2}$ of 846 = ?

846 = 800 + 40 + 6

Divide each part (box **A**).

Box **B** shows a better way to work.

Divide hundreds: *Think*, "8 ÷ 2 = 4." Write "4" in hundred's place in the quotient.

Multiply (4 hundreds × 2) and write "800" under 846. Subtract (846 − 800 = 46).

Divide the tens: *Think*, "4 ÷ 2 = 2." Write "2" in ten's place in the quotient.

Multiply (2 tens × 2) and write "40" under 46. Subtract (46 − 40 = 6).

Divide the ones: *Think*, "6 ÷ 2 = 3" and finish. Check by multiplying 423 by 2.

Explain the work in Ex. 5 to 8.

5. $$\begin{array}{r} 212\\ 4\overline{)848}\\ \underline{800}\\ 48\\ \underline{40}\\ 8\\ \underline{8}\\ 0 \end{array}$$

6. $$\begin{array}{r} 132\\ 3\overline{)396}\\ \underline{300}\\ 96\\ \underline{90}\\ 6\\ \underline{6}\\ 0 \end{array}$$

7. $$\begin{array}{r} 219\\ 2\overline{)438}\\ \underline{400}\\ 38\\ \underline{20}\\ 18\\ \underline{18}\\ 0 \end{array}$$

8. $$\begin{array}{r} 144\\ 3\overline{)432}\\ \underline{300}\\ 132\\ \underline{120}\\ 12\\ \underline{12}\\ 0 \end{array}$$

[W]

Copy, divide, and check by multiplying.

9. $2\overline{)644}$ 11. $4\overline{)496}$ 13. $6\overline{)684}$ 15. $8\overline{)968}$
10. $3\overline{)936}$ 12. $5\overline{)655}$ 14. $2\overline{)944}$ 16. $4\overline{)624}$

Division Test 2

[W]

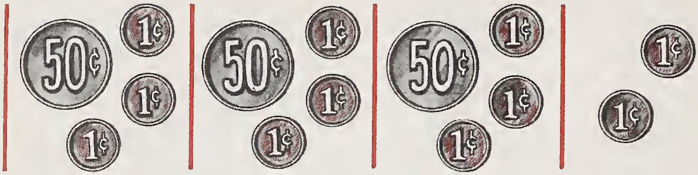
Copy, and divide. To check your work, do each example twice.

1. $3\overline{)96}$ 5. $4\overline{)64}$ 9. $4\overline{)944}$ 13. $8\overline{)256}$
2. $7\overline{)77}$ 6. $2\overline{)134}$ 10. $2\overline{)56}$ 14. $3\overline{)75}$
3. $3\overline{)972}$ 7. $3\overline{)168}$ 11. $6\overline{)264}$ 15. $2\overline{)572}$
4. $2\overline{)108}$ 8. $2\overline{)758}$ 12. $9\overline{)378}$ 16. $7\overline{)294}$

➤ **Extra Practice.** If you made mistakes in the test, study pages 88 to 90 and work Sets 24 to 27. Then take this test again.

Dividing Dollars and Cents

[O]



1. Ralph found that he could not divide $1.61 of play money into 3 equal groups. Use the picture to explain.

Box A shows how to divide money numbers. Cents always take 2 places. Why is "0" written to the left of the cent point in the quotient?

A	B
$0.53, R2	Check
3)$1.61	$0.53
1 50	×3
11	$1.59
9	+0.02
2	$1.61

Explain box A. How do you show the remainder, 2? This remainder, 2, really means "2 cents." Why?

Study box B and tell what you do with the remainder in the division check.

[W]

Copy, divide, and check.

2. 3)$2.63
3. 6)$1.29
4. 3)$2.37
5. 7)$2.89
6. 7)$1.48
7. 4)$2.69
8. 2)$1.05
9. 8)$3.29
10. 6)$2.47
11. 8)$2.49
12. 3)$1.37
13. 8)$1.69
14. 5)$2.08
15. 5)$6.58
16. 3)$5.06
17. 4)$7.39

➤ **Extra Practice.** Work Sets 28 and 33.

You often show the remainder beside the quotient when the last division is not even.

A Shorter Way to Divide

Omitting zeros [O]

You have been dividing as in box **A.** Box **B** shows a shorter way. You bring down figures as you need them.

Box **B.** Multiply: *think*, "16" and write "16," not "160," under 18 (tens). Subtract: 6 from 8 = 2 (tens).

Then bring down the 4 (ones) beside the 2 (tens). Think of this as 24 ones, and finish the work.

A

$$\begin{array}{r} 46 \\ 4\overline{)184} \\ \underline{160} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

B

$$\begin{array}{r} 46 \\ 4\overline{)184} \\ \underline{16} \\ 24 \\ \underline{24} \end{array}$$

C

$$\begin{array}{r} 185,\ \text{R2} \\ 3\overline{)557} \\ \underline{3} \\ 25 \\ \underline{24} \\ 17 \\ \underline{15} \\ 2 \end{array}$$

D

$$\begin{array}{r} \$0.41,\ \text{R2} \\ 6\overline{)\$2.48} \\ \underline{2\ 4} \\ 8 \\ \underline{6} \\ 2 \end{array}$$

Explain the division in box **C**; in box **D.**

Be sure to compare each remainder with the divisor. If a remainder can be divided by the divisor, you should have had a larger quotient figure. When the last remainder is 0, do not write it (see box **B**).

[W]

Copy, divide the short way, and check.

1. $4\overline{)219}$
2. $3\overline{)295}$
3. $4\overline{)398}$
4. $4\overline{)338}$
5. $2\overline{)195}$
6. $5\overline{)167}$
7. $6\overline{)249}$
8. $2\overline{)377}$
9. $8\overline{)186}$
10. $7\overline{)800}$
11. $9\overline{)308}$
12. $8\overline{)331}$
13. $9\overline{)\$2.07}$
14. $6\overline{)\$2.04}$
15. $7\overline{)\$1.63}$
16. $5\overline{)\$6.21}$

On page 92, divide Ex. 2 to 17 without showing zeros.

Practice in Uneven Division

[W]

For boxes A and B, copy and finish the examples.

A

$$\begin{array}{r} ??\\ 7\overline{)91} \\ \underline{7} \\ ?1 \\ \underline{21} \end{array}$$

B

$$\begin{array}{r} 4?,\ \text{R}?\\ 8\overline{)337} \\ \underline{??} \\ ?7 \\ \underline{16} \\ ? \end{array}$$

Divide, and check each example by multiplying.

1. $6\overline{)84}$
2. $5\overline{)70}$
3. $8\overline{)96}$
4. $7\overline{)84}$
5. $5\overline{)72}$
6. $8\overline{)99}$
7. $6\overline{)87}$
8. $7\overline{)92}$
9. $6\overline{)132}$
10. $5\overline{)171}$
11. $8\overline{)184}$
12. $3\overline{)791}$
13. $8\overline{)336}$
14. $9\overline{)110}$
15. $5\overline{)617}$
16. $9\overline{)371}$
17. $5\overline{)68}$
18. $9\overline{)108}$
19. $9\overline{)216}$
20. $8\overline{)105}$
21. $7\overline{)800}$
22. $5\overline{)711}$
23. $7\overline{)294}$
24. $9\overline{)308}$
25. $3\overline{)476}$
26. $7\overline{)224}$

Division Test 3

D. with final remainder [W]

Copy and divide the short way.

	a	b	c	d	e	f	g
1.	$4\overline{)22}$	$8\overline{)35}$	$2\overline{)19}$	$9\overline{)19}$	$6\overline{)20}$	$9\overline{)29}$	$8\overline{)18}$
2.	$7\overline{)23}$	$4\overline{)14}$	$7\overline{)30}$	$9\overline{)20}$	$4\overline{)29}$	$5\overline{)16}$	$4\overline{)19}$
3.	$8\overline{)329}$	$5\overline{)167}$	$6\overline{)253}$	$7\overline{)309}$	$9\overline{)302}$	$4\overline{)118}$	$5\overline{)223}$
4.	$3\overline{)847}$	$4\overline{)965}$	$4\overline{)531}$	$7\overline{)855}$	$2\overline{)933}$	$3\overline{)649}$	$2\overline{)777}$
5.	$7\overline{)165}$	$8\overline{)987}$	$5\overline{)168}$	$3\overline{)896}$	$9\overline{)199}$	$6\overline{)854}$	$4\overline{)394}$

Extra Practice. For more help, study pages 84 to 86, and pages 92 to 93. Then work Sets 28, 31, and 33.

Add or Subtract, Multiply or Divide—Which?

Problem-solving, differentiating processes [W]

On your paper write "A." or "S." after the numbers 1 to 4, to tell when to add and when to subtract. Then go back and work each problem.

1. Of the 550 children in our school, 383 eat lunch in the cafeteria. The other _?_ children bring lunches.

2. Out of 400 sandwiches all but 36 were sold today. How many sandwiches were sold?

3. In three days the cafeteria sold 298, 307, and 316 bottles of milk, or _?_ bottles in all.

4. Anne's lunches last month cost $4.68. This month they cost 75¢ more, or _?_.

On your paper, write "M." or "D." after the numbers 5 to 9 to tell when to multiply and when to divide.

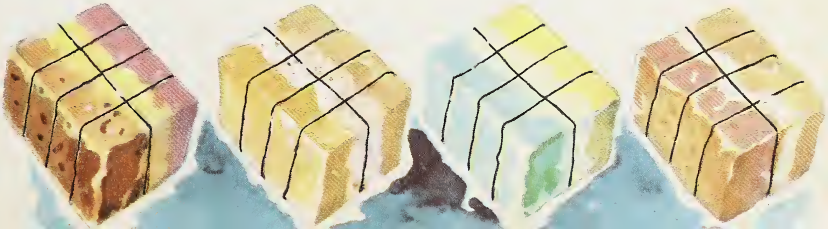
5. Three children can be served in a minute. How many minutes does it take to serve 27 children?

6. Last Friday 9 doz., or _?_, plums were sold at noon.

7. Tom bought 4 lunch tickets which cost $0.25 each. How much did he pay for them?

8. The 96 children in line were served in 3 equal groups. How many children were in each group?

9. If bricks of ice cream are cut into 8 pieces, how many bricks are needed for 32 pieces?



Practice in Dividing

[W]

Copy and divide. Watch for uneven division!

1. $2\overline{)98}$
2. $7\overline{)147}$
3. $3\overline{)96}$
4. $4\overline{)248}$
5. $5\overline{)105}$
6. $3\overline{)123}$
7. $6\overline{)204}$
8. $8\overline{)184}$
9. $4\overline{)193}$
10. $3\overline{)195}$
11. $9\overline{)189}$
12. $2\overline{)134}$
13. $4\overline{)93}$
14. $9\overline{)207}$
15. $3\overline{)295}$
16. $7\overline{)239}$
17. $4\overline{)229}$
18. $2\overline{)190}$
19. $8\overline{)106}$
20. $5\overline{)222}$
21. $3\overline{)235}$
22. $5\overline{)172}$
23. $8\overline{)328}$
24. $9\overline{)388}$
25. $3\overline{)396}$
26. $7\overline{)857}$
27. $4\overline{)688}$
28. $9\overline{)128}$
29. $2\overline{)649}$
30. $6\overline{)804}$
31. $3\overline{)563}$
32. $8\overline{)979}$

Division Test 4

[W]

Copy and divide, using the short way. In this set of examples are the kinds of division you have studied in this chapter. See how well you can do. Work carefully!

1. $4\overline{)388}$
2. $4\overline{)96}$
3. $3\overline{)189}$
4. $7\overline{)154}$
5. $2\overline{)486}$
6. $8\overline{)249}$
7. $6\overline{)246}$
8. $3\overline{)695}$
9. $8\overline{)337}$
10. $5\overline{)107}$
11. $6\overline{)193}$
12. $9\overline{)217}$
13. $4\overline{)337}$
14. $8\overline{)259}$
15. $6\overline{)139}$
16. $2\overline{)248}$
17. $9\overline{)370}$
18. $5\overline{)157}$
19. $8\overline{)185}$
20. $3\overline{)261}$
21. $7\overline{)162}$
22. $7\overline{)217}$
23. $8\overline{)193}$
24. $5\overline{)217}$
25. $9\overline{)379}$
26. $4\overline{)904}$
27. $9\overline{)298}$
28. $6\overline{)72}$

Do You Understand?

Test of Information and Meaning 2

1. Copy and then work the example below in which you could find the total by multiplying.

a. 6 + 7 + 18 + 83 **b.** 19 + 19 + 19 + 19

Copy the example from box **A** in which you

2. borrow a ten.

3. carry a hundred.

A		
	$\begin{array}{r}268\\+351\\\hline\end{array}$	$\begin{array}{r}539\\-499\\\hline\end{array}$
	$\begin{array}{r}642\\+229\\\hline\end{array}$	$\begin{array}{r}714\\-608\\\hline\end{array}$

Write in figures the number that has

4. 3 hundreds and 41 ones. **5.** 57 tens and 5 ones.

Copy the example from box **B** in which you

6. carry a ten in multiplying.

7. write "6" in the quotient in dividing.

8. have a remainder after you divide.

B		
	$\begin{array}{r}426\\\times 2\\\hline\end{array}$	$3\overline{)111}$
		$4\overline{)24}$
	$\begin{array}{r}252\\\times 2\\\hline\end{array}$	$2\overline{)431}$

Copy and finish Ex. 9 and 10.

9. To find $\frac{1}{4}$ of a group, you must divide the group into _?_ equal parts.

10. You borrow a hundred in subtraction when you cannot subtract in the _?_ column.

Write these examples in two other ways with answers:

11. $3\overline{)18}$ **12.** 8 ÷ 4 **13.** $\frac{1}{2}$ of 104

Can You Solve Problems?

Problem Test 2

1. Tom saved $4.48 to buy a camera. His father said he would need $3.64 more. What was the price of the camera?

2. Tom saved the $3.64 in 4 weeks. He saved the same amount each week. How much did he save each week?

3. After buying his camera, Tom joined a camera club. It cost 75¢ a month. In 4 months Tom paid how much?

4. Films for Tom's camera cost 48¢ each. How much did Tom pay for 4 films?

5. A bus trip to the zoo cost $0.75 for each boy. That was how much in all for 3 boys?

6. On the trip, club members took 104 pictures. If a roll of film makes 8 pictures, how many rolls of film did they use?

7. Of the 104 pictures, 84 were of animals. How many pictures were not of animals?

8. Tom counted and found he had 175 pictures in his book. After he put in 43 new pictures, how many were in his book?

Written Practice

Copy and work. Be careful! Watch the signs!

1. 557 ÷ 4
2. 2 × 480
3. 114 × 5
4. 200 − 63
5. 200 ÷ 6
6. 875 + 98
7. 104 × 9
8. 186 ÷ 3
9. 8 × 124
10. 971 ÷ 8
11. 178 × 4
12. 756 + 84
13. 313 − 76
14. 143 × 5
15. 96 ÷ 4
16. 4 × $0.43
17. 3 × $2.98
18. 887 − 699
19. $9.24 − $8.98
20. 926 − 859
21. 7 × $1.34
22. $8.06 + $0.97
23. $3.47 − $2.58
24. 835 − 257
25. 356 + 99 + 57
26. 53 + 79 + 39 + 237
27. Write the addition facts for 10.

Test Yourself 3

[W]

Copy and work Ex. 1 to 22. Watch the signs!

1. 3 × 289
2. 914 − 649
3. 789 + 67
4. 469 × 2
5. 185 ÷ 2
6. 934 − 795
7. 169 ÷ 7
8. 23 + 78
9. 102 × 8
10. 199 ÷ 9
11. 216 ÷ 5
12. 6 × 104
13. 693 ÷ 3
14. 476 − 67
15. 156 × 4
16. 900 − 872
17. 637 + 98
18. 306 ÷ 9
19. 828 + 56 + 57
20. 79 + 34 + 45 + 68
21. 379 + 70 + 52
22. 66 + 133 + 91

Do You Make Mistakes?

Diagnostic Test 2

Copy the numbers. Find and check all answers.

	a	b	c	Study Pages	Practice Sets
1.	$\begin{array}{r}32\\ \times 3\\ \hline\end{array}$	$\begin{array}{r}41\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}302\\ \times 3\\ \hline\end{array}$	62–65	18 to 20
2.	$\begin{array}{r}34\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}372\\ \times 2\\ \hline\end{array}$	$\begin{array}{r}167\\ \times 4\\ \hline\end{array}$	67–69	21, 22, 23
3.	$8\overline{)88}$	$5\overline{)155}$	$3\overline{)963}$	88, 90	25, 26
4.	$8\overline{)33}$	$7\overline{)30}$	$9\overline{)38}$	84–86	24, 31
5.	$3\overline{)84}$	$4\overline{)73}$	$6\overline{)192}$	89, 90–91	27
6.	$5\overline{)\$2.15}$	$8\overline{)\$3.31}$	$7\overline{)\$9.95}$	92, 93	28, 33

Practice in D. [W]

Remember: Division examples may be written three ways. Write each of these examples two other ways:

1. $4\overline{)84}$
2. $\frac{1}{4}$ of 48
3. $\frac{1}{3}$ of 39
4. 217 ÷ 7
5. 256 ÷ 4
6. $3\overline{)291}$
7. $\frac{1}{2}$ of 268
8. 288 ÷ 9
9. 348 ÷ 2
10. $2\overline{)346}$
11. $\frac{1}{3}$ of 93
12. $7\overline{)147}$

Now work Ex. 1 to 12. Check your division.

Written Practice

Copy and work the examples. Watch the signs!

1. $\begin{array}{r}869\\ -707\\ \hline\end{array}$	2. $\begin{array}{r}104\\ \times 6\\ \hline\end{array}$	3. $\begin{array}{r}98\\ \times 2\\ \hline\end{array}$	4. $\begin{array}{r}\$2.75\\ \times 3\\ \hline\end{array}$
5. $\begin{array}{r}124\\ \times 8\\ \hline\end{array}$	6. $\begin{array}{r}411\\ -68\\ \hline\end{array}$	7. $\begin{array}{r}788\\ +89\\ \hline\end{array}$	8. $4\overline{)\$2.73}$
9. $\begin{array}{r}607\\ +193\\ \hline\end{array}$	10. $6\overline{)258}$	11. $\begin{array}{r}168\\ \times 4\\ \hline\end{array}$	12. $\begin{array}{r}\$3.00\\ -1.98\\ \hline\end{array}$
13. $8\overline{)915}$	14. $3\overline{)278}$	15. $9\overline{)369}$	16. $5\overline{)\$2.05}$

17. 311 + 17 + 600 18. 27 + 40 + 69 + 97 + 46

19. Write in a column the subtraction facts for 10.

How Well Can You Figure?

Computation Test 2

Copy and work the examples. Check your work.

1. $\begin{array}{r}197\\ \times 4\\ \hline\end{array}$	2. $\begin{array}{r}801\\ -794\\ \hline\end{array}$	3. $\begin{array}{r}134\\ \times 7\\ \hline\end{array}$	4. $\begin{array}{r}457\\ \times 2\\ \hline\end{array}$
5. $\begin{array}{r}800\\ -776\\ \hline\end{array}$	6. $\begin{array}{r}43\\ \times 5\\ \hline\end{array}$	7. $\begin{array}{r}752\\ +148\\ \hline\end{array}$	8. $8\overline{)\$0.98}$
9. $\begin{array}{r}34\\ \times 9\\ \hline\end{array}$	10. $\begin{array}{r}578\\ -396\\ \hline\end{array}$	11. $4\overline{)381}$	12. $\begin{array}{r}\$1.03\\ \times 6\\ \hline\end{array}$
13. $5\overline{)723}$	14. $3\overline{)164}$	15. $7\overline{)\$2.87}$	16. $9\overline{)\$2.91}$

17. 384 + 61 + 315 19. 895 + 78 + 27

18. 308 + 418 + 29 20. 88 + 77 + 99 + 66 + 55

3

The Boy Scout Camp

You add or multiply to find how many or how much in all.

If the groups are not equal, you add.
If the groups are equal, you can multiply.

You subtract or divide to break up groups.

You subtract to find
1. how many left. **3. the difference.**
2. how many gone. **4. the other part.**

You divide to find
1. how many equal groups there are.
2. how many there are in each equal part or equal share of a group.

Write addition problems where you see A., subtraction problems where you see S., and so on.

1. 10 of 18 Scouts went on an overnight hike. S.

2. A two-day hike of 30 miles. The first day the hikers went 16 miles. S.

3. 18 Scouts, $\frac{1}{2}$ of them in one tent. D.

4. 18 Scouts, 6 Scouts on each ball team. D.

5. 36 pieces of firewood in 3 equal piles. D.

6. Tom took $2.50 for spending money. His uncle sent him $1.75 more. A.

7. Mike spent 2 hours a day fishing on each of the first 8 days. M.

Estimating Sums

2-place numbers [O]

Bob was helping his father set out pear trees.

1. Bob said, "About how many trees are we planting, 40 or 60 or 100? There are 19 trees of one kind and 32 trees of another, but I have no paper and pencil."

Do you know a way to find out?

Bob's father said, "You can get about the right answer by thinking of 19 as 2 tens and of 32 as 3 tens."

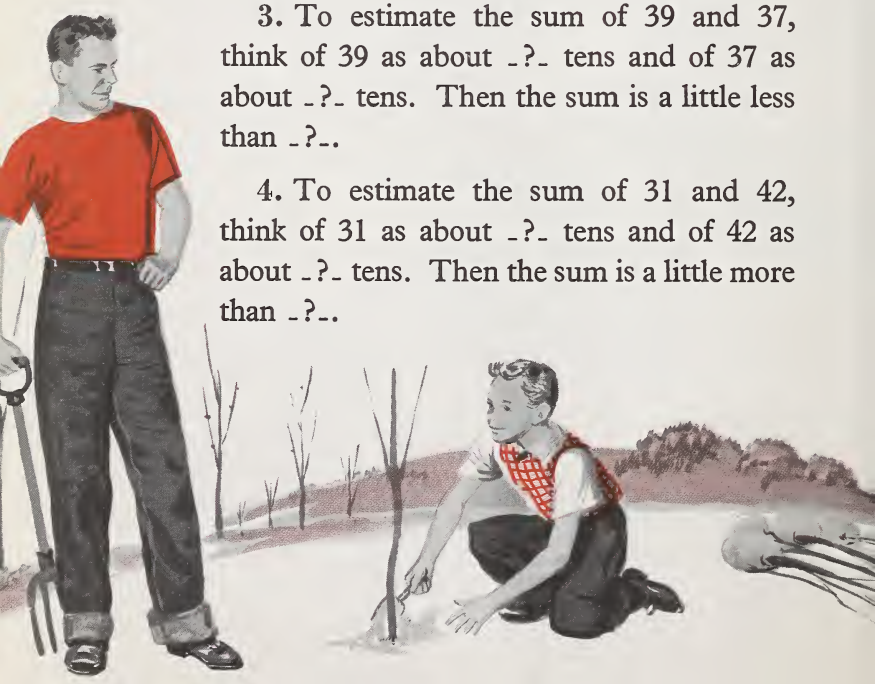
2. About how many trees were Bob and his father going to plant? 2 tens + 3 tens = ?

The answer, 50, is not right, but it is almost right. Sometimes "almost-right" sums are good enough for what we want.

When we find almost-right sums, we say that we estimate the sums.

3. To estimate the sum of 39 and 37, think of 39 as about _?_ tens and of 37 as about _?_ tens. Then the sum is a little less than _?_.

4. To estimate the sum of 31 and 42, think of 31 as about _?_ tens and of 42 as about _?_ tens. Then the sum is a little more than _?_.



5. In estimating sums, how should you think of these numbers (that is, as how many tens)?

a. 62 **b.** 29 **c.** 41 **d.** 37 **e.** 53 **f.** 48

6. Estimate the sums you should get by adding 21 to each of the numbers in Ex. 5.

7. Estimate the sums you should get by adding 38 to each of the numbers in Ex. 5.

Make a rule about estimating sums of 2-place numbers.

[W]

Write estimates for Ex. 8 to 23. For Ex. 8, you write "4 tens + 3 tens = 7 tens, or 70."

8. 42+29
9. 51+22
10. 63+18
11. 47+21
12. 38+48
13. 27+23
14. 49+38
15. 18+62
16. 77+11
17. 21+63
18. 32+42
19. 48+49
20. 22+37
21. 41+51
22. 19+37
23. 51+42

Practice in Column Addition

[W]

1 to 3. Add the columns in Ex. a, b, and c. Use 68 for the missing number.

4 to 6. Use 193 in Ex. a to c.

a.	b.	c.
748	695	?
46	?	579
?	47	68

7 to 9. Add in Ex. d, e, and f. This time use 9 for the missing number.

10 to 15. Now for Ex. d, e, and f use 7. Then use 8.

16 to 21. Now for Ex. d, e, and f use 69. Then use 97.

d.	e.	f.
8	47	?
6	?	56
4	9	47
?	6	99
7	5	

Estimating Remainders

[O]

You can estimate answers in subtraction, too.

1. 98 − 49 = ? 98 is about _?_ tens. 49 is about _?_ tens. 10 tens minus 5 tens = _?_ tens. The true remainder is about _?_ tens.

In this way, estimate the remainders in Ex. 2 to 5.

2. 89 − 41 3. 61 − 32 4. 58 − 39 5. 97 − 48

Tell how to estimate in subtracting 2-place numbers.

[W]

Before finding the true remainders, write estimates. For Ex. 6, write "7 tens − 3 tens = 4 tens, or 40."

6. 68 − 32
7. 52 − 23
8. 87 − 49
9. 71 − 38
10. 83 − 32
11. 99 − 42
12. 61 − 39
13. 42 − 28
14. 97 − 28
15. 57 − 21
16. 43 − 18
17. 82 − 39
18. 63 − 23
19. 91 − 77
20. 48 − 32
21. 88 − 58

Written Practice

Copy and work. Do each example a second time.

1. 3 × 259
2. 111 − 48
3. 217 ÷ 5
4. 5 × 134
5. 489 + 507
6. 231 ÷ 3
7. 387 ÷ 4
8. 453 × 2
9. 770 − 683
10. 3 × 245
11. 401 − 48
12. 381 ÷ 4
13. 199 ÷ 2
14. 124 times 8
15. 4 × 248
16. 659 plus 99
17. 300 minus 56
18. 9 × 104

Estimating Answers for Problems

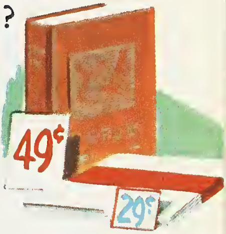
A. or S. [W]

Write an estimated answer for each problem.

1. The swimming pool at Hill School is 68 ft. long and 42 ft. wide. How many feet longer is it than it is wide?

2. Joe can swim the length of the pool 12 times. Jack can swim the length of the pool 47 times, or how many more times than Joe?

3. When 21 children left the pool, 38 others came in. The two groups made a total of how many?



How much should you pay for

4. a 49¢ book and a 29¢ package of paper?

5. cookies costing 22¢ and fruit, 32¢?

What is the difference in cost between

6. notebooks costing 10¢ and 50¢?

7. hard candy at 28¢ and at 49¢?

How many in all are there in groups

8. of 38 and of 57 toy soldiers?

9. of 49 and of 43 cows?

How many would be left if

10. 18 of the 42 sheep in a pen jumped the fence?

Now find the true answers for Ex. 1 to 10.

Reading Four-Place Numbers

[O]

You have seen many 4-place numbers. The place at the left is for thousands. These numbers are read:

3,652	Three thousand six hundred fifty-two
8,220	Eight thousand two hundred twenty
4,086	Four thousand eighty-six
6,500	Six thousand five hundred

Now read the numbers in rows 1 and 2.

	a	b	c	d	e	f
1.	2,517	1,605	8,739	3,900	4,120	6,719
2.	5,800	9,614	4,015	7,202	8,096	6,347

Tell why a comma is often put in 4-place numbers.

Other Ways to Read Large Numbers

House numbers [O]

Sometimes we use numbers to mark things or put them in order, not to tell how many. We may read such numbers without saying "hundreds" or "thousands."

This house number is read "nine seventy-two."

When 0 is in the middle of a number, it is read as "oh."

Use no comma in writing a house number. Ex. 1 is read "forty-six twenty"; Ex. 2, "twenty-two oh-four."

Read the house numbers in Ex. 3 to 6.

1. 4620 Bird Street
2. 2204 May Avenue
3. 7906 James Road
4. 5418 Lee Avenue
5. 5915 Hilltop Drive
6. 5240 High Street

Telephone numbers

This telephone number is read "six, four-one-three." The one in Ex. 7 is read "five-nine-oh." Ex. 8 is read "Empire, two, one-two-one-oh."

Read telephone numbers in Ex. 9 to 12.

7. 590 **9.** 9–504 **11.** FRontenac 2–457

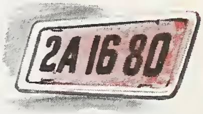
8. EMpire 2–1210 **10.** L–2094 **12.** PAcific 4–007

Dates

Newfoundland became the tenth Canadian province in 1949. No comma is used in a date. We read this date, "nineteen forty-nine."

Read the following dates:

13. 1492 **14.** 1867 **15.** 1905 **16.** 1608 **17.** 1914



The number of this automobile licence is read "two-A one-six eight-oh."

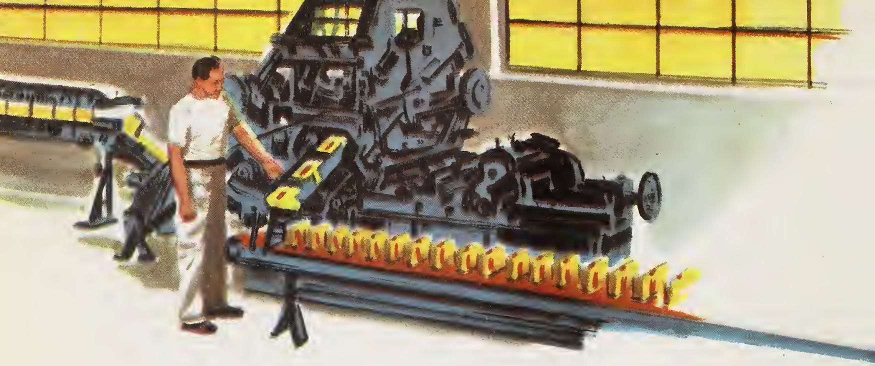
Numbers are used in many ways on automobile licences. Find licence numbers from other parts of the country and bring them to read to the class.

To Keep in Practice

[W]

Copy the examples and find answers. Check your work.

	a	b	c
1.	800 − 573	\$0.78 + \$4.63	36 + 25 + 9 + 48
2.	543 + 98	\$9.07 − \$1.65	317 + 212 + 217
3.	612 − 79	\$4.00 − \$0.87	8 + 5 + 8 + 6 + 3
4.	389 − 299	\$4.25 + \$3.64	72 + 9 + 7 + 18

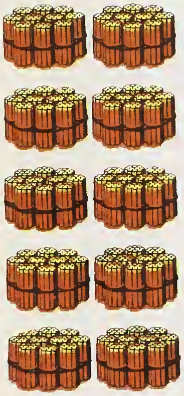


Understanding Four-Place Numbers

Meaning of thousand [O]

Mr. Hardy at his machine turns out thousands of boxes of cookies every day.

It is hard to think of a thousand things. If you were to count every letter and figure on page 109, you would have only about 700.



It is even hard to think of 1,000 as 100 tens. Just try to think about 100 of these:

It is easier to think of 1,000 as the total of 10 hundreds. See the picture at the left.

1. 10 hundreds = 1 thousand (1,000), so

a. 12 hundreds = 1 _?_ and _?_ hundreds.

b. 37 hundreds = _?_ thousands and 7 _?_.

c. 61 hundreds = 6 _?_ and 1 _?_.

d. 94 hundreds = 9 _?_ and 4 _?_.

2. In 6,843, the 6 is in thousand's place. It means "6 thousands." Tell about the place and meaning of each of the other figures. Do the same for Ex. a to e below.

a. 7,248 **b.** 2,064 **c.** 8,007 **d.** 5,420 **e.** 2,836

3. We can break up four-place numbers in several ways to show what they mean. This has been done for 5,629 in boxes **A** to **C**. Explain the work.

A

5,629 = 5 thousands and 6 hundreds and 2 tens and 9 ones
or 5,000 + 600 + 20 + 9

B

5,629 = 56 hundreds and 2 tens and 9 ones
or 5,600 + 20 + 9

C

5,629 = 562 tens and 9 ones
or 5,620 + 9

4. Finish Ex. a and b. Tell the missing words.

a. 7,085 = 7 -?- + 0 -?- + 8 -?- + 5 -?-;
or 70 -?- + 8 -?- + 5 -?-;
or 708 -?- + 5 -?-.

b. 8,902 = 8 -?- + 9 -?- + 0 -?- + 2 -?-;
or 89 -?- + 0 -?- + 2 -?-;
or 890 -?- + 2 -?-.

[W]

Write these numbers to show their meanings as was done in Ex. 4a and 4b.

5. 3,624 **6.** 5,089 **7.** 9,207 **8.** 4,350 **9.** 7,060

Write the number in figures for

10. 2 thousands and 3 hundreds and 8 tens and 0 ones.

11. 78 hundreds and 4 tens and 9 ones.

12. 20 hundreds + 13.
13. 2 thousands + 50 tens.
14. 10 hundreds + 9.
15. 8 thousands + 7.
16. 17 hundreds + 25.
17. 276 tens + 4.

Adding Four-Place Numbers

[O]

1. Watching the circus parade, there were 1,623 men and 4,256 women and children, or -?- people altogether.

A

	Thousands	Hundreds	Tens	Ones
	1,	6	2	3
+	4,	2	5	6
	5,	8	7	9

B

$$\begin{array}{r} \overset{1}{5},5\ 0\ 0 \\ +\ 3,7\ 0\ 0 \\ \hline 9,2\ 0\ 0 \end{array}$$

In box **A**, 1,623 and 4,256 are the addends (numbers to be added). How was the sum of these addends found?

2. At the circus, there were about 5,500 men and women and also about 3,700 children. That was about how many people in all (box **B**)?

The sum of the hundreds is 12. But 12 hundreds (1,200) = 1 thousand and 2 hundreds. Carry the 1 thousand.

When the sum in the hundred's column is 10 or more, you carry.

You add thousands just as you add ones.

Explain the additions in Ex. 3 to 6.

3. $\begin{array}{r} 4,625 \\ +2,036 \\ \hline 6,661 \end{array}$

4. $\begin{array}{r} 697 \\ +4,934 \\ \hline 5,631 \end{array}$

5. $\begin{array}{r} \$23.98 \\ +46.15 \\ \hline \$70.13 \end{array}$

6. $\begin{array}{r} 2,487 \\ 959 \\ +3,264 \\ \hline 6,710 \end{array}$

[W]

7 to 13. Add 4,609 to each number below.

3,468 487 3,759 4,676 3,893 597 2,085

Copy in columns and add. Check your work.

14. 2,625 + 429 + 364

15. \$10.00 + \$0.58 + \$5.85

16. 1,008 + 2,365 + 4,892

17. \$0.98 + \$4.68 + \$9.59

➤ **Extra Practice.** Work Set 16.

Finding n, the Missing Number

[O]

1. In box A, tell the addends and the sum.

2. Boxes B and C have the same numbers as box A. In boxes B and C, what is the remainder when one addend is taken from the sum?

A

$$\begin{array}{r} 34 \\ +57 \\ \hline 91 \end{array}$$

B

$$\begin{array}{r} 91 \\ -34 \\ \hline 57 \end{array}$$

C

$$\begin{array}{r} 91 \\ -57 \\ \hline 34 \end{array}$$

Adding two numbers gives a third number called the sum.

If you know the sum of two addends and one addend used to make the sum, you subtract to find the other addend.

[W]

For each of these addition and subtraction examples, find **n**. For Ex. 3a, write, "47 − 23 = **n**, so **n** = 24." For Ex. 5a, write, "22 − 18 = **n**, so **n** = 4."

	a	b	c
3.	47 = 23 + n	n = 19 + 36	91 = 99 − n
4.	39 = n + 15	18 + n = 37	n = 263 + 137
5.	22 − n = 18	n = 50 + 24	235 − n = 80

Subtracting Four-Place Numbers

[O]

1. Our small truck can carry 3,500 pounds. If it now has a load of 2,200 pounds, how much more can it carry?

See Ex. **A** below. Subtract, starting at the right. Is there anything new in subtracting four-place numbers?

2. When the truck is carrying 1,800 lb., how many pounds can be put in it?

A	Thousands	Hundreds	Tens	Ones
	3,	5	0	0
−	2,	2	0	0
	1,	3	0	0
B				
	2	⑮		
	$\cancel{3}$,	$\cancel{5}$	0	0
−	1,	8	0	0
	1,	7	0	0

Study the work in Ex. **B.**

Why must you borrow?

What figure do you see which shows that a thousand was borrowed?

What figures show that 1 borrowed thousand was changed to 10 hundreds and added to 5 hundreds?

What was done to the 15 to show that it means "15 hundreds"?

When you cannot subtract hundreds, borrow a thousand and change it to 10 hundreds. You subtract thousands as you subtract ones.

Explain the subtractions in Ex. 3 to 6.

3.	4,462	4.	5,189	5.	8,248	6.	$90.80
	−938		−4,827		−1,795		−38.76
	3,524		362		6,453		$52.04

[W]

7 to 12. Subtract 809 from each number below.

3,541 5,437 4,653 7,625 8,674 3,740

13 to 18. Subtract 1,767 from each number above.

19 to 24. Subtract 5,378 from each number below.

8,267 9,726 7,672 5,821 8,812 8,490

25 to 30. Subtract 4,987 from each number above.

Extra Practice. Work Set 17.

No Pencil! No Paper!

A. and S. [O]

Think and say just the sum or the remainder.

	a	**b**	**c**	**d**	**e**
1.	63 + 7	72 − 8	33 − 6	29 + 8	62 − 8
2.	32 + 7	53 + 8	47 − 8	54 − 9	28 + 6
3.	79 − 7	34 − 9	64 + 8	49 − 6	61 − 5
4.	56 + 4	86 − 9	35 − 9	83 − 7	72 + 6
5.	51 − 9	45 + 7	45 + 4	63 + 6	44 − 6
6.	32 − 9	68 − 5	64 − 8	57 − 9	36 + 5
7.	64 + 7	38 + 5	56 + 7	32 − 3	57 − 3
8.	55 − 6	61 − 8	22 − 5	22 + 6	73 + 8

What is **n** in rows 9 to 12?

	a	**b**	**c**	**d**
9.	n + 8 = 16	n + 7 = 11	8 − n = 5	n = 2 + 8
10.	5 + n = 13	n = 8 + 6	17 = 8 + n	13 − n = 6
11.	n = 15 − 7	n = 10 − 8	15 − n = 6	n + 8 = 14
12.	12 − n = 3	9 − n = 7	13 = n + 8	16 = n + 7

Harder Subtraction

O's in the minuend [O]

1. As Dick went into the ball park, the counter showed 3,675. How many more people must go into the park before the counter shows the number 5,000?

Why must we subtract?

2. In box A, 5,000 is the minuend (the number to be subtracted from). What do we call 3,675 (the number to be subtracted)?

A

$$\begin{array}{rl} 5{,}000 & \text{minuend} \\ -3{,}675 & \text{subtrahend} \\ \hline \end{array}$$

B

$$\begin{array}{rl} \overset{4}{\cancel{5}},\overset{9}{0}\overset{9}{0}\overset{\text{⑩}}{\cancel{0}} & \text{minuend} \\ -3{,}675 & \text{subtrahend} \\ \hline 1{,}325 & \text{remainder} \end{array}$$

To subtract ones, we need to borrow a ten. Why?

Remember that 5,000 equals 500 tens. So we borrow one of the 500 tens, leaving 499 tens, or 4 thousands and 9 hundreds and 9 tens. Explain box **B**.

Is Ex. 3 like the example in box **B**? Explain it.

3. $$\begin{array}{r} \overset{5}{\cancel{6}},\overset{9}{0}\overset{9}{0}\overset{\text{⑩}}{\cancel{0}} \\ -829 \\ \hline 5{,}171 \end{array}$$

4. $$\begin{array}{r} \overset{2}{\cancel{3}},\overset{9}{\cancel{0}}10 \\ -2{,}648 \\ \hline 362 \end{array}$$

The last borrowing in Ex. 4 has been done for you. Explain all the borrowing.

[W]

Write your work for these subtractions:

5. From 5,000, subtract **a.** 739; **b.** 4,493; **c.** 3,974.
6. From 8,000, subtract **a.** 867; **b.** 7,586; **c.** 1,658.
7. From 6,010, subtract **a.** 812; **b.** 5,721; **c.** 3,294.
8. From 7,199, subtract **a.** 369; **b.** 4,258; **c.** 6,267.

The Halloween Party at School

Differentiating A. and S. [W]

Write your work for problems 1 to 6.

1. Betty cut out one string of 58 witches and another of 46. This was how many witches in all?

2. One string of witches was 140 inches long. The other was 108 inches. How much longer was one string than the other?

3. Joan needed 80 pumpkins of orange paper. After cutting out 36, how many did she still need?

4. Later Joan needed only 15 more pumpkins to make the 80. How many had she cut out then?

5. We have 70 cupcakes, 48 of them white. The rest are dark. How many are dark?

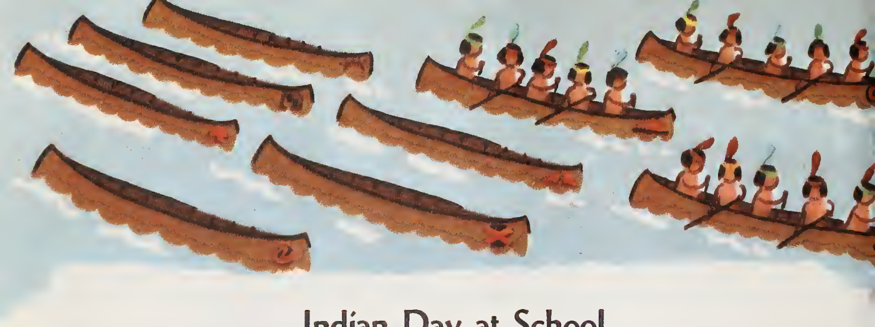
6. We also have sandwiches, 48 ham and 30 egg. How many sandwiches in all do we have?

Test Yourself 4

A. and S. [W]

Write answers on folded paper. Work carefully.

	a	b	c	d	e
1.	930 −852	3,987 +657	488 +789	1,300 −748	811 −69
2.	567 +886	700 −653	285 −66	243 −147	901 −697
3.	29 407 +979	233 2,748 +459	70 377 +935	978 53 +696	2,549 479 +2,284



Indian Day at School

M. facts for 5's and for 5 [O]

1. Count by 5's to find how many Indians Jane has drawn. 5, 10, -?-. Three 5's = ?

2. With 5 Indians in each canoe, find how many Jane will put in 5 canoes. Cover all but 5 canoes. Count by 5's as you touch the canoes. Five 5's = ?

Count by 5's to tell how many Indians for

3. 6 canoes.
4. 4 canoes.
5. 2 canoes.
6. 8 canoes.
7. 7 canoes.
8. 9 canoes.

9. Mike wants to make 5 headbands. With 9 feathers to a band how many feathers will he need? Five 9's = ? Add in Ex. a. Say the M. fact.

a	b	c	d
9	7	8	6
9	7	8	6
9	7	8	6
9	7	8	6
+9	+7	+8	+6

10. But he has only 7 feathers for each of the 5 headbands. How many feathers does he have? Five 7's = ? Tell which of the examples to use (b, c, or d). Say the M. fact.

11. For 5 necklaces with 8 stones each you need -?- stones. Five 8's = ? Use Ex. c and say the M. fact.

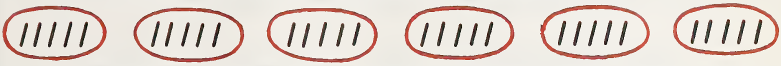
12. For 5 necklaces with 6 stones each you need -?- stones. Use Ex. d and say the M. fact. Five 6's = ?

Working in the School Store

D. facts with divisor 5 and quotient 5 [O]

1. In the school store, Jane sells picture post cards in sets of 5. How many sets can Jane make from 30 cards?

You can divide 30 marks into groups of 5.



Count how many groups you have. Say the D. fact.

Or you can subtract 5's from 30. Copy the work at the right on the board and finish it. 5's in 30 = ?

Or find the division fact for 5's in 30 by using the multiplication fact, 6 × 5 = 30.

$$\begin{array}{rl} 30 & \\ -5 & (1) \\ \hline 25 & \\ -5 & (2) \\ \hline 20 & \\ -5 & (3) \\ \hline 15 & \\ -5 & (4) \\ \hline ? & \end{array}$$

2. With 40 cards, how many sets of 8 cards each can Jane make? 40 ÷ 8 = ? 8's in 40 = ?

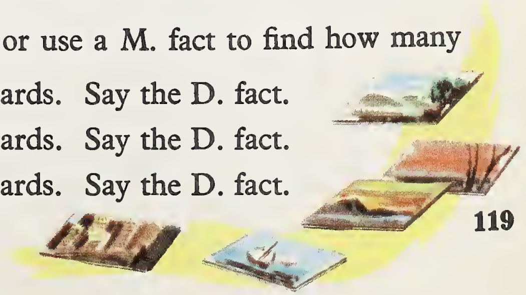
Find out by making marks on the board. 8's in 40 = ? Why is this not the best way?

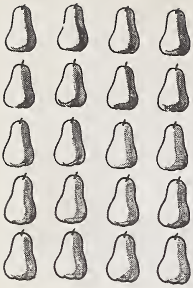
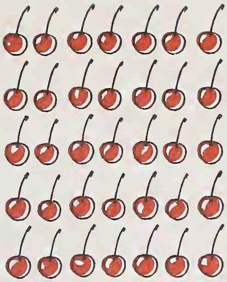
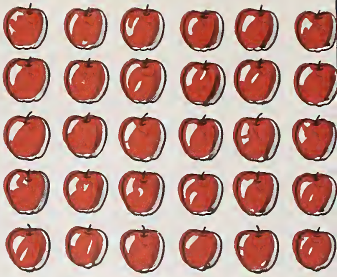
Find how many 8's in 40 by subtracting 8's at the board. Is this way better than counting marks? Why?

What multiplication fact can you use to find the division fact, 8's in 40 = ? Tell how.

Count or subtract or use a M. fact to find how many

3. sets of 9 in 45 cards. Say the D. fact.
4. sets of 5 in 35 cards. Say the D. fact.
5. sets of 4 in 20 cards. Say the D. fact.



Can You Find Whole Stories?

M. and D. facts [O]

1. Using the 20 pears, you can make four examples which give the whole story in M. and D. for 4, 5, and 20.

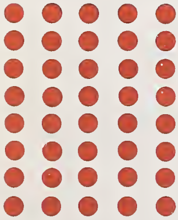
Five 4's = ? (Using rows, count by 4's.)
Four 5's = ? (Using columns, count by 5's.)
4's in 20 = ? (How many rows of 4 pears?)
5's in 20 = ? (How many columns of 5 pears?)

2. Finish the whole story in M. and D. for 5, 7, and 35 below. Use the picture of the 35 cherries.

5 × 7 = ? (Rows, count by _?_'s.)
7 × 5 = ? (Columns, count by _?_'s.)
35 ÷ 7 = ? (How many rows of 7 cherries?)
35 ÷ 5 = ? (How many columns of 5 cherries?)

3. Use the rows and columns of apples to finish the whole story in M. and D. for 5, 6, and 30.

5 × 6 6 × 5 30 ÷ 6 30 ÷ 5



4. In the picture with 40 dots there are _?_ equal rows of _?_ dots, and _?_ equal columns of _?_ dots.

Use the rows and columns of dots to tell the whole story in M. and D.

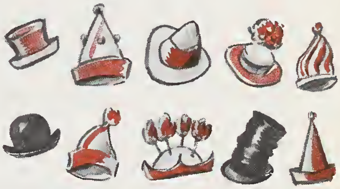
[W]

5. Copy and finish the whole story in M. and D. about 5, 3, and 15. Use the picture of 15 clown shoes for help. There are 5 rows of 3 shoes each or 3 columns of 5 shoes each.

$5 \times 3 = ?$ $15 \div 3 = ?$

$3 \times 5 = ?$ $15 \div 5 = ?$

6. Copy and finish the whole story in M. and D. about 2, 5, and 10. Use the picture of 10 clown hats for help.



$2 \times 5 = ?$ $10 \div 5 = ?$

$5 \times 2 = ?$ $10 \div 2 = ?$

7. Draw a picture of 45 clown whips, in 5 equal columns of 9 whips each. Then write and finish the whole story in M. and D. about 5, 9, and 45.

5×9 9×5 $45 \div 9$ $45 \div 5$

8. Draw a picture of 25 circles in 5 equal rows. Write the whole story in M. and D. How many parts has this whole story?

Copy Ex. 9 to 14. Write the three other multiplication and division facts that go with each fact to make its whole story.

9. $40 \div 8 = 5$

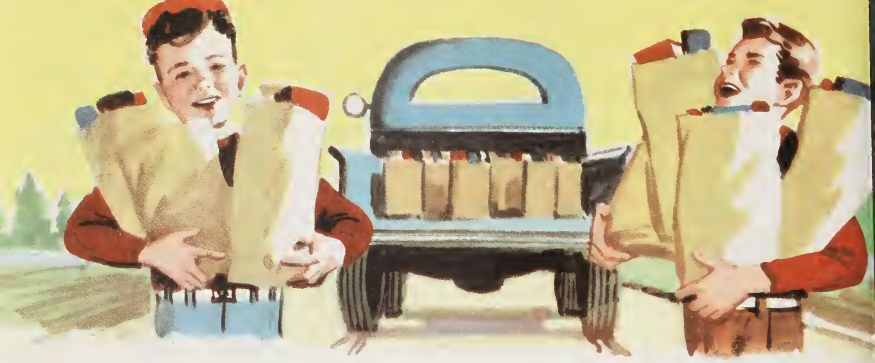
10. $5 \times 4 = 20$

11. $7 \times 5 = 35$

12. $2 \times 5 = 10$

13. $\begin{array}{r} 5 \\ \times 3 \\ \hline 15 \end{array}$

14. $\begin{array}{r} 6 \\ 5\overline{)30} \end{array}$



Multiplication Problems about Camp

Facts for 5's and for 5 [W]

Write answers. For help, count by 3's, 5's, and so on.

1. Tom filled 3 bags with food for the "cook-out" and Sam filled 5 times as many. Sam filled _?_ bags.

2. The boys put 5 different things into each picnic bag. How many things did 9 bags hold?

3. Each big boat on the lake carries 6 children. How many children in all can 5 of those boats carry?

4. A small boat on the lake carries only 5 children. How many in all can 8 of the small boats carry?

Making Multiplication Tables

Facts for 5's and for 5 [W]

M. facts for 5's

1 × 5 = 5
2 × 5 = 10
3 × 5 = ?
and so on to
9 × 5 = ?

M. facts for 5

5 × 1 = 5
5 × 2 = 10
5 × 3 = ?
and so on to
5 × 9 = ?

1. Copy the facts in the boxes and finish the tables for 5's and for 5.

2. Circle those facts you have had in other multiplication tables.

3. Copy the facts you have not had in earlier tables.

Practice on Multiplication Facts

[O]

Say the products by rows and by columns. Make study cards for hard facts.

	a	b	c	d	e	f	g	h	i	j
1.	5 ×4	3 ×9	9 ×4	6 ×3	4 ×8	9 ×3	5 ×5	3 ×6	4 ×5	7 ×2
2.	2 ×9	9 ×5	5 ×7	4 ×9	8 ×2	6 ×5	7 ×3	2 ×8	5 ×3	4 ×3
3.	4 ×6	8 ×4	3 ×5	4 ×4	5 ×9	8 ×3	7 ×4	3 ×8	6 ×4	2 ×6
4.	3 ×7	5 ×8	9 ×2	3 ×4	7 ×5	4 ×7	5 ×6	2 ×7	8 ×5	2 ×4

Extra Practice. Work Set 29.

To Keep in Practice

[W]

Copy and work. Watch the signs!

1. 6 × 143
2. 316 + 976
3. 800 − 679
4. 403 × 7
5. 103 ÷ 4
6. 79 times 3
7. 98 × 4
8. 669 ÷ 3
9. 711 − 364
10. 996 ÷ 4
11. 5 × 134
12. 224 ÷ 7
13. 9's in 388
14. 123 × 8
15. 807 − 69
16. 260 ÷ 6
17. 375 plus 478
18. 184 ÷ 8
19. 347 minus 239
20. 9 × 104
21. 889 + 216
22. 874 from 900
23. 1,467 + 789
24. 155 ÷ 5
25. 98 + 89 + 88 + 35
26. 245 + 150 + 708

Multiplication Facts for 5's

5	5	5	5	5	5	5	5	5
×1	×2	×3	×4	×5	×6	×7	×8	×9
5	10	15	20	25	30	35	40	45

Multiplication Facts for 5

1	2	3	4	5	6	7	8	9
×5	×5	×5	×5	×5	×5	×5	×5	×5
5	10	15	20	25	30	35	40	45

Vocabulary [O]

A

multiplier multiplicand product

4 × 5 = 20

B

5 multiplicand
×4 multiplier
20 product

1. In boxes A and B, what do you call the number that you multiply? the number that you multiply by? the answer?

2. Which table above has 5 as multiplicand? as multiplier?

3. The M. facts in color are the only ones you may have to learn. You had the others in earlier tables.

4. For both tables, how much larger is each product than the one before it?

5. In multiplication tables for 5's and for 5, each product ends in _?_ or _?_.

6. 3 × 5 = 15 means 5 + 5 + 5 = 15. How does this help show why products are almost always larger than multiplicands?

In multiplication, the product is almost always larger than the multiplicand.

Test Yourself 5

Turn to page 123. On folded paper write products for the examples in rows 1 to 4 at the top of the page.

Multiplication Practice

[O]

Say answers by rows, then by columns. For Ex. 1a *think*, "15, 17" ($3 \times 5 = 15$, $15 + 2 = 17$).

	a	b	c	d
1.	$3 \times 5 + 2$	$7 \times 4 + 6$	$9 \times 5 + 6$	$9 \times 2 + 6$
2.	$4 \times 9 + 3$	$8 \times 5 + 5$	$8 \times 3 + 5$	$5 \times 6 + 3$
3.	$7 \times 5 + 4$	$7 \times 3 + 5$	$5 \times 5 + 2$	$4 \times 8 + 3$
4.	$5 \times 9 + 3$	$5 \times 7 + 2$	$9 \times 4 + 7$	$2 \times 8 + 1$
5.	$3 \times 8 + 2$	$4 \times 5 + 3$	$9 \times 3 + 5$	$5 \times 3 + 4$
6.	$6 \times 5 + 4$	$2 \times 9 + 1$	$6 \times 3 + 4$	$3 \times 9 + 2$
7.	$8 \times 4 + 6$	$5 \times 8 + 2$	$4 \times 7 + 3$	$5 \times 4 + 2$
8.	$6 \times 4 + 5$	$2 \times 7 + 1$	$8 \times 2 + 5$	$4 \times 6 + 2$

[W]

To check each example below, multiply again.

		a	b	c	d
9.	Multiply by 5:	108	246	713	509
10.	Multiply by 4:	961	137	872	283
11.	Multiply by 9:	205	354	542	432
12.	Multiply by 8:	55	435	504	254
13.	Multiply by 6:	250	531	415	345
14.	Multiply by 7:	501	45	352	255

Using the Calendar

[W]

Copy and finish the two calendars that are started for you. Give February 28 days.

JANUARY						
S	M	T	W	T	F	S
		1	2	3	4	5
6						

FEBRUARY						
S	M	T	W	T	F	S
					1	2
3						

Write the missing words or numbers for Ex. 1 to 7. Use the calendars you have made to help you.

1. January has _?_ weeks and _?_ days over.

2. January has _?_ Mondays and _?_ Saturdays.

3. In February, each week day comes _?_ times.

4. From Jan. 2 to Jan. 23 is _?_ weeks.

5. From Jan. 12 to Feb. 16 is _?_ weeks.

6. If you start a trip on Jan. 28 and are gone 2 weeks, you will get back on Feb. _?_.

7. If you start a 3-week trip on Feb. 22, you will get back in the month of _?_.

8. Make a calendar for the month of March that will follow your calendar for February. On your calendar

a. circle the date for the second Tuesday;

b. put a cross on the date for the fourth Friday.

7 days (da.) = 1 week (wk.)
4 wk. = 1 month (mo.)

Written Practice

Copy and work. Check all answers.

1. 91 ÷ 4
2. 5 × 24
3. 98 ÷ 8
4. 99 ÷ 2
5. 15 × 6
6. 95 ÷ 3
7. 35 × 7
8. 95 ÷ 3
9. 203 ÷ 6
10. 848 ÷ 4
11. 215 × 4
12. 3 × 287
13. 195 ÷ 4
14. 111 ÷ 9
15. 5 × 413
16. 7 × 142
17. $9.12 ÷ 8
18. 9 × $0.45
19. $1.95 ÷ 3
20. 2 × $3.87
21. $1.54 ÷ 7
22. 4 × $2.16
23. 8 × $0.54
24. $2.58 ÷ 6

What Is Wrong?

[O]

Something is wrong in each exercise. Can you find it?

1. Mr. Rogers drives the car to his office in 4 minutes. It takes him 20 minutes when he has 5 people in the car.

2. Joe is 9 years old. He weighs 70 pounds. When he is 36 years old, he will weigh 4 times as much.

3. Dick walks to school in 35 minutes. Joe makes it in 28 minutes. It takes Dick and Joe 63 minutes when they go together.

4. Each leg of a table 2 feet high is 30 inches long.

5. Jane got on the bus at 8:30 A.M. At 9:00 A.M. that day she had finished her trip of 160 miles.

6. Tom gave the clerk a half dollar to pay for a 37¢ kite. His change was 3 cents.

Division Facts with Divisor or Quotient 5

Vocabulary; making tables [O]

1. What do we call the number we divide? the number we divide by? the answer? (See box **A**.)

A	**B**	**C**
5 ← quotient 9)45 ← dividend ↑ divisor	12 ÷ 4 = 3	3 4)12

2. Name the dividend, the divisor, the quotient in box **B**; in box **C**.

[W]

Division Facts
Divisor 5

5 ÷ 5 = 1
10 ÷ 5 = 2
15 ÷ 5 = ?
20 ÷ 5 = ?
and so on to
45 ÷ 5 = ?

Division Facts
Quotient 5

5 ÷ 1 = 5
10 ÷ 2 = 5
15 ÷ 3 = ?
20 ÷ 4 = ?
and so on to
45 ÷ 9 = ?

3. Copy and finish the division tables started in the boxes at the left.

HELPER. Use the multiplication facts. For 15 ÷ 5 = ? *think,* "3 × 5 = 15, so 15 ÷ 5 = 3."

4. In the table when 5 is the divisor, what do you notice about the quotient?

5. In the table with 5 as the divisor, is the quotient each time larger or smaller than the dividend?

6. In the table with 5 as the quotient, is the quotient usually larger or is it smaller than the dividend?

7. For what divisor is the quotient the same as the dividend?

When a divisor is larger than 1, the quotient is smaller than the dividend.

How Many for Each?

Fractional-part D. [O]

1. Five boys went fishing. They divided 15 fishhooks equally. How many hooks did each boy get?

The question is,

How many are there in each of the 5 equal parts of 15? That is, each $\frac{1}{5}$ of 15 = ?

Find the answer by putting marks in 5 circles.

For $\frac{1}{5}$ of 15, find 15 ÷ 5 = ? or $\begin{array}{r} ? \\ 5\overline{)15} \end{array}$.

2. On the board, show what you write to find $\frac{1}{6}$ of 30; $\frac{1}{7}$ of 35; $\frac{1}{8}$ of 40; $\frac{1}{9}$ of 45.

[W]

3. Copy and finish. If you work across the rows, the D. facts will help you with the fraction facts.

D. Facts Divisor 5	Fraction Facts
5 ÷ 5 = 1	$\frac{1}{5}$ of 5 = 1
10 ÷ 5 = 2	$\frac{1}{5}$ of 10 = 2
15 ÷ 5 = ?	$\frac{1}{5}$ of 15 = ?
20 ÷ 5 = ?	$\frac{1}{5}$ of 20 = ?
25 ÷ 5 = ?	$\frac{1}{5}$ of 25 = ?
30 ÷ 5 = ?	$\frac{1}{5}$ of 30 = ?
35 ÷ 5 = ?	$\frac{1}{5}$ of 35 = ?
40 ÷ 5 = ?	$\frac{1}{5}$ of 40 = ?
45 ÷ 5 = ?	$\frac{1}{5}$ of 45 = ?

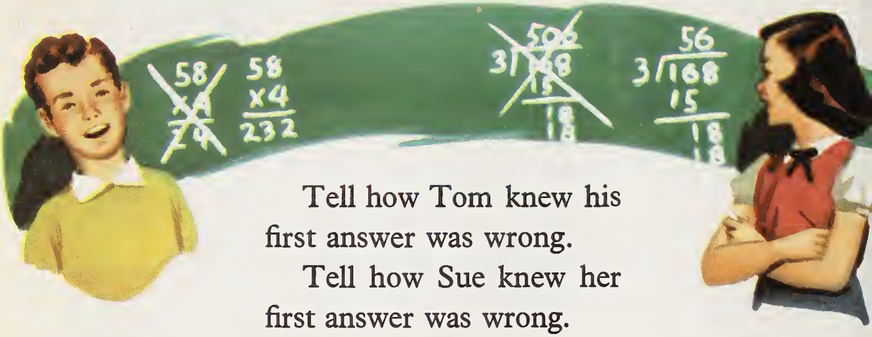
D. Facts Quotient 5	Fraction Facts
5 ÷ 1 = 5	
10 ÷ 2 = 5	$\frac{1}{2}$ of 10 = 5
15 ÷ 3 = ?	$\frac{1}{3}$ of 15 = ?
20 ÷ 4 = ?	$\frac{1}{4}$ of 20 = ?
25 ÷ 5 = ?	$\frac{1}{5}$ of 25 = ?
30 ÷ 6 = ?	$\frac{1}{6}$ of 30 = ?
35 ÷ 7 = ?	$\frac{1}{7}$ of 35 = ?
40 ÷ 8 = ?	$\frac{1}{8}$ of 40 = ?
45 ÷ 9 = ?	$\frac{1}{9}$ of 45 = ?

Testing Answers in M. and D.

Problem-solving [O]

Remember: When the multiplier is larger than 1, the product is almost always larger than the multiplicand.

If a divisor is larger than 1, the quotient is usually smaller than the dividend.



Tell how Tom knew his first answer was wrong.

Tell how Sue knew her first answer was wrong.

Without doing the work for problems 1 to 10, find the answer you know is wrong. Tell why you know.

1. I have finished $\frac{1}{3}$ of my 15 examples. How many examples have I worked? **18 5 9**

2. I did my work in 20 min. Joe took 3 times as long, or _?_ min. **60 15 30**

3. Sue bought 4 paint books at 25¢ each. How much did she have to pay? **\$0.05 \$1.00 \$1.25**

4. Each of Sue's 4 books has 85 pages. In all, how many pages are in the 4 books? **340 270 35**

5. One fourth of Mike's 76 hens laid no eggs today. How many laid no eggs? **9 19 88**

6. One third of my 75 stamps are foreign. How many foreign stamps have I? **80 9 25**

7. A set of 6 doll chairs costs $1.44. Then how much does each chair cost? **$2.50 $0.88 $0.24**

8. How many badges, each 4 inches long, can you make from 68 inches of ribbon? **17 24 73**

9. To make 15 badges, each 4 inches long, how many inches of ribbon do you need? **12 60 84**

10. Each day Jack sells 45 papers. In 4 days how many newspapers does he sell? **36 120 180**

[W]

Now solve the problems. Write your work.

Studying Tables of Division Facts

D. facts with divisor or quotient 5 [O]

Division Facts, Divisor 5

$\begin{array}{r}1\\5\overline{)5}\end{array}$	$\begin{array}{r}2\\5\overline{)10}\end{array}$	$\begin{array}{r}3\\5\overline{)15}\end{array}$	$\begin{array}{r}4\\5\overline{)20}\end{array}$	$\begin{array}{r}5\\5\overline{)25}\end{array}$	$\begin{array}{r}6\\5\overline{)30}\end{array}$	$\begin{array}{r}7\\5\overline{)35}\end{array}$	$\begin{array}{r}8\\5\overline{)40}\end{array}$	$\begin{array}{r}9\\5\overline{)45}\end{array}$

Division Facts, Quotient 5

$\begin{array}{r}5\\1\overline{)5}\end{array}$	$\begin{array}{r}5\\2\overline{)10}\end{array}$	$\begin{array}{r}5\\3\overline{)15}\end{array}$	$\begin{array}{r}5\\4\overline{)20}\end{array}$	$\begin{array}{r}5\\5\overline{)25}\end{array}$	$\begin{array}{r}5\\6\overline{)30}\end{array}$	$\begin{array}{r}5\\7\overline{)35}\end{array}$	$\begin{array}{r}5\\8\overline{)40}\end{array}$	$\begin{array}{r}5\\9\overline{)45}\end{array}$

1. Which fact is the same in both tables? Why?

2. In the tables there are only nine new facts to learn. Which are they? See if you know these new facts.

3. For each colored division fact in the box, show at the board how to check the quotient figure by multiplying.

4. Try to say the facts with divisor 5; with quotient 5.

Oral Work

[O]

Say quotients by rows and then by columns.

	a	b	c	d	e	f
1.	$3\overline{)15}$	$5\overline{)35}$	$45 \div 9$	$20 \div 4$	$\frac{1}{4}$ of 32	$\frac{1}{4}$ of 20
2.	$5\overline{)10}$	$4\overline{)28}$	$28 \div 7$	$35 \div 7$	$\frac{1}{5}$ of 35	$\frac{1}{3}$ of 27
3.	$3\overline{)27}$	$5\overline{)40}$	$24 \div 4$	$24 \div 3$	$\frac{1}{5}$ of 25	$\frac{1}{5}$ of 45
4.	$6\overline{)18}$	$9\overline{)45}$	$25 \div 5$	$40 \div 8$	$\frac{1}{3}$ of 15	$\frac{1}{5}$ of 15
5.	$5\overline{)45}$	$2\overline{)10}$	$24 \div 8$	$30 \div 5$	$\frac{1}{5}$ of 20	$\frac{1}{3}$ of 24
6.	$4\overline{)36}$	$3\overline{)21}$	$15 \div 5$	$21 \div 7$	$\frac{1}{5}$ of 40	$\frac{1}{5}$ of 30
7.	$6\overline{)30}$	$5\overline{)20}$	$18 \div 3$	$32 \div 8$	$\frac{1}{4}$ of 24	$\frac{1}{5}$ of 10
8.	$5\overline{)25}$	$4\overline{)32}$	$24 \div 6$	$36 \div 9$	$\frac{1}{3}$ of 18	$\frac{1}{3}$ of 21

Extra Practice. Work Set 30.

To Keep in Practice

[W]

Copy and work. Be careful! Watch the signs!

1. $\begin{array}{r} 5{,}000 \\ -768 \\ \hline \end{array}$
2. $\begin{array}{r} 289 \\ \times 4 \\ \hline \end{array}$
3. $\begin{array}{r} 1{,}347 \\ -879 \\ \hline \end{array}$
4. $\begin{array}{r} 4{,}658 \\ +979 \\ \hline \end{array}$
5. $\begin{array}{r} 879 \\ \times 5 \\ \hline \end{array}$
6. $\begin{array}{r} 427 \\ -398 \\ \hline \end{array}$
7. $\begin{array}{r} 435 \\ \times 8 \\ \hline \end{array}$
8. $\begin{array}{r} 504 \\ \times 7 \\ \hline \end{array}$

9. $3\overline{)209}$ 10. $4\overline{)260}$ 11. $3\overline{)172}$ 12. $4\overline{)348}$

13. $3\overline{)294}$ 14. $2\overline{)95}$ 15. $4\overline{)386}$ 16. $4\overline{)95}$

17. $5 + 68 + 7 + 39$ 18. $857 + 249 + 486$

19. $348 + 4{,}509 + 1{,}364$ 20. $4{,}321 + 579 + 38$

21. Write in a column all the addition facts for 10.

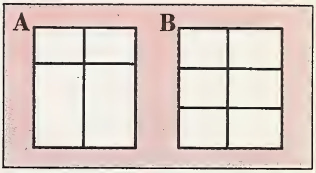
So You Won't Forget!

Try to tell all the answers.

1. What is the smallest four-place number you can write, using each of the figures 7, 1, 3, 4 only once?

2. How many facts are there in the whole story in multiplication and division about 4, 4, and 16?

3. To find the total of several equal numbers you can either _?_ or _?_.



4. In 5,246 what does 2 mean?

5. Does rectangle **A** show fourths?

6. Does rectangle **B** show fifths?

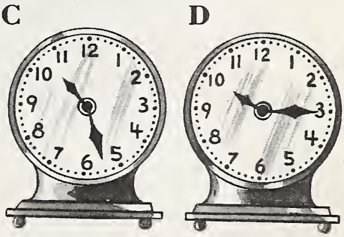
7. A third of one orange is not equal to a third of another orange unless the oranges are _?_.

8. In the example 86 = n + 76, why does n = 10?

9. You can find how many 5's there are in 35, either by subtracting 5's or by _?_ by 5.

10. For dividing by 4, what are the table numbers?

11. What is the number that means 10 hundreds?



12. Clock **C** in the picture shows _?_ minutes later than clock **D**.

13. How many nickels can you get for a quarter?

14. What month follows June?

15. Since 107 + 213 = 320, then 320 − 213 = ?

Test Yourself 6

[W]

Write just the quotients on folded paper.

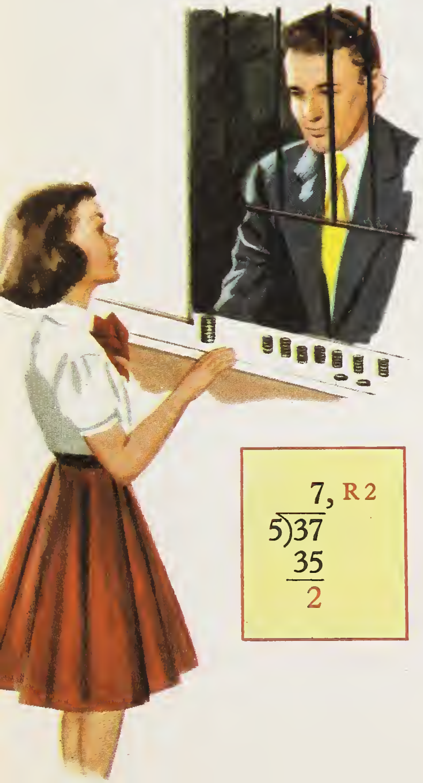
	a	b	c	d	e	f	g
1.	$2\overline{)10}$	$8\overline{)16}$	$5\overline{)25}$	$9\overline{)18}$	$5\overline{)35}$	$6\overline{)24}$	$8\overline{)40}$
2.	$2\overline{)18}$	$5\overline{)30}$	$9\overline{)27}$	$8\overline{)24}$	$6\overline{)18}$	$4\overline{)20}$	$3\overline{)21}$
3.	$7\overline{)35}$	$3\overline{)27}$	$4\overline{)36}$	$9\overline{)45}$	$7\overline{)28}$	$5\overline{)20}$	$9\overline{)36}$
4.	$5\overline{)45}$	$3\overline{)18}$	$4\overline{)24}$	$8\overline{)32}$	$5\overline{)10}$	$6\overline{)30}$	$7\overline{)14}$
5.	$4\overline{)32}$	$7\overline{)21}$	$5\overline{)15}$	$3\overline{)24}$	$5\overline{)40}$	$4\overline{)28}$	$3\overline{)15}$

Division with a Remainder

Using table numbers [O]

1. Jane changed 37 pennies into how many nickels?

$$37 \div 5 = ?$$



$$\begin{array}{r} 7, \text{ R } 2 \\ 5\overline{)37} \\ \underline{35} \\ 2 \end{array}$$

You can use the picture to find how many nickels Jane got. Were any pennies left over?

You can count marks or subtract 5's. How many 5's are there in 37? How many 1's left over?

You can write the work as in the box. Explain. What table number do you use? What is the answer?

Which of these ways do you think is quickest? Why?

2. Copy and finish the work in this box. The table numbers for 5 are 5, 10, 15, 20 and so on to 45.

Dividing by 5	**5**	**10**	**15**	**20**	. . . .	**45**
	6	11	16	21	. . . .	46
	7	12	17	22	. . . .	?
	8	13	18	?	. . . .	?
	9	14	?	?	. . . .	?

Using table numbers, write the work for dividing by 5 in Ex. 3 to 14, as done in the box on page 134.

3. $5\overline{)32}$
4. $5\overline{)39}$
5. $5\overline{)43}$
6. $5\overline{)42}$
7. $5\overline{)28}$
8. $5\overline{)48}$
9. $5\overline{)33}$
10. $5\overline{)37}$
11. $5\overline{)49}$
12. $5\overline{)41}$
13. $5\overline{)44}$
14. $5\overline{)47}$

The table of division facts with quotient 5, page 131, shows you the table numbers for dividing by 6, 7, 8, and 9. Copy and finish Ex. 15 to 18.

15. Dividing by 6. The table number for dividing 31, 32, 33, 34, and 35 is _?_. The quotient is _?_.

16. Dividing by 7. The table number for dividing 36, 37, 38, 39, 40, and 41 is _?_. The quotient is _?_.

17. Dividing by 8. The table number for dividing 41, 42, 43, 44, 45, 46, and 47 is _?_. The quotient is _?_.

18. Dividing by 9. The table number for dividing 46, 47, 48, 49, 50, 51, 52, and 53 is _?_. The quotient is _?_.

Using table numbers, write the work as on page 134.

19. $5\overline{)38}$
20. $6\overline{)32}$
21. $5\overline{)31}$
22. $9\overline{)40}$
23. $8\overline{)36}$
24. $7\overline{)38}$
25. $5\overline{)34}$
26. $8\overline{)42}$
27. $9\overline{)46}$
28. $6\overline{)34}$
29. $5\overline{)46}$
30. $9\overline{)48}$

Practice in Division With a Remainder

First D. uneven; 2-place quotients [W]

Work Ex. 1 to 12. Ex. 1 is started for you in the box.

$$\begin{array}{r l} ?? & \\ 5\overline{)196} & \leftarrow \text{dividend} \\ 15 & \\ \hline 46 & \\ ?? & \\ \hline & \text{divisor} \end{array}$$

1.	$5\overline{)196}$	5.	$9\overline{)310}$	9.	$7\overline{)245}$
2.	$9\overline{)407}$	6.	$5\overline{)414}$	10.	$2\overline{)159}$
3.	$8\overline{)275}$	7.	$3\overline{)296}$	11.	$5\overline{)477}$
4.	$4\overline{)356}$	8.	$5\overline{)335}$	12.	$7\overline{)305}$

Extra Practice. Work Set 32.

Finding n

Missing factor or product [O]

a. $4 \times 5 = 20$
b. $4 \times 5 = n$
c. $n = 4 \times 5$
d. $4 \times n = 20$
e. $n \times 5 = 20$
f. $20 = n \times 5$
g. $20 = 4 \times n$

1. In Ex. a, 4 is the multiplier, 5 is the _?_, and 20 is the _?_.

2. Multiplicands and multipliers are called factors. Name the factors in Ex. a to g.

3. To find **n** in Ex. b, what must you do to the factors? in Ex. c?

Factors multiplied together give the product.

4. In Ex. d to g, what does **n** stand for?

5. In Ex. d, divide the product, 20, by the given factor 4. Do you get the other factor?

6. In Ex. e to g, tell how to find **n**.

If you know the product and one factor, you can find the other factor. You divide the product by the factor that is given.

Tell the number for **n** in Ex. 7 to 12.

7. $18 = n \times 9$
8. $n \times 4 = 24$
9. $45 = n \times 5$
10. $6 \times n = 30$
11. $n \times 8 = 24$
12. $5 \times n = 45$

[W]

Copy Ex. 13 to 32, putting a number in place of **n.**

13. $4 \times n = 32$
14. $25 = n \times 5$
15. $9 \times n = 27$
16. $8 \times n = 32$
17. $30 = 6 \times n$
18. $n \times 3 = 24$
19. $20 = 5 \times n$
20. $5 \times n = 15$
21. $n \times 7 = 28$
22. $4 \times n = 36$
23. $5 \times n = 30$
24. $24 = 6 \times n$
25. $n \times 9 = 45$
26. $32 = n \times 4$
27. $35 = n \times 7$

28. $\begin{array}{r} 9 \\ \underline{\times n} \\ 45 \end{array}$
29. $\begin{array}{r} 8 \\ \underline{\times n} \\ 40 \end{array}$
30. $\begin{array}{r} n \\ \underline{\times 7} \\ 21 \end{array}$
31. $\begin{array}{r} 8 \\ \underline{\times n} \\ 24 \end{array}$
32. $\begin{array}{r} n \\ \underline{\times 4} \\ 24 \end{array}$

Finding n When Products Are Larger

[W]

$n \times 4 = 72$, $72 = n \times 4$, $72 = 4 \times n$. What is **n**? Here, too, you are given the product and one factor. Why does **n** equal 18?

$$\boxed{\begin{array}{r} 18 \\ 4\overline{)72} \\ \underline{4} \\ 32 \\ \underline{32} \end{array}}$$

Find **n** in Ex. 1 to 14. Write your work as in the box.

1. $96 = 4 \times n$
2. $3 \times n = 72$
3. $n \times 2 = 86$
4. $5 \times n = 80$
5. $n \times 9 = 126$
6. $98 = n \times 7$
7. $9 \times n = 297$
8. $324 = 6 \times n$
9. $288 = 3 \times n$
10. $8 \times n = 336$
11. $n \times 4 = 344$
12. $890 = 5 \times n$
13. $248 = 8 \times n$
14. $n \times 5 = 675$

At the Football Game

Problem-solving: differentiating A., S., M., D. [W]

For Ex. 1 to 7, find answers about the game.

1. Only 175 grown people bought tickets before the game. Of the 270 tickets, how many were not sold?

2. All but 29 of the 175 grown people who bought tickets came to the game. How many grown people who bought tickets earlier were at the game?

3. Three men came together. One of them bought all 3 tickets at 45¢ each. How much did he pay?

4. Of all the children in Jack's school, 28 girls came. Three times as many boys came. How many boys came?

5. Jack counted the people at the game. He counted 108 boys, 39 girls, and 206 grown people. This made a total of how many people?

6. Fourteen different boys played on Bill's team and 18 boys played on the other team. In all, how many boys took part in the game?

7. The game lasted 60 min. Bill played all but $\frac{1}{4}$ of this time. How many minutes was he out of the game?

Written Practice

Copy and work Ex. 1 to 15.

1. 4 × 927
2. 482 ÷ 5
3. 4 × 375
4. 227 ÷ 9
5. 809 × 3
6. 8 × 245
7. 228 ÷ 3
8. 970 − 390
9. 8,215 + 864
10. 475 × 5
11. 384 = 4 × n
12. 5 × n = 435
13. 48 + 379 + 75
14. 624 + 1,748
15. 1,400 − 876

Copy Ex. 16 to 27 and write the estimated answers. For Ex. 16 *think*, "23 is about 2 tens, 68 is about 7 tens, so the sum is about 9 tens." Write "23 + 68 is about 90."

16. 23 + 68
17. 98 − 49
18. 62 − 37
19. 19 + 52
20. 81 − 59
21. 23 + 48
22. 38 + 21
23. 63 + 19
24. 52 minus 41
25. 37 from 83
26. 28 plus 47
27. 37 plus 47

Copy Ex. 16 to 27 again and find the true answers.

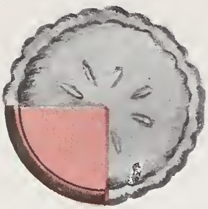
Copy in columns. Add and check your work.

28. 5, 6, 9, 7, 5
29. 28, 49, 53, 72
30. 249, 398, 407
31. 897, 952, 508
32. 470, 813, 299
33. 345, 424, 907

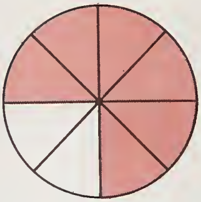
More than 1 of the Equal Parts

Multiple fractions **[O]**

A



B



Jack took one fourth ($\frac{1}{4}$) of pie **A** for his lunch.

1. Find how much pie is left. Cut out a piece of paper the size of Jack's part and use it as a measure.

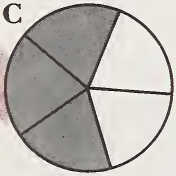
2. The part of pie **A** which Jack took is -?- fourth. The part left is -?- one fourths, or three fourths.

To find the length of this page, you could use as a unit of measure a piece of paper one inch long. To find how much of pie **A** is left, you used as a unit of measure one of the equal parts of the whole pie.

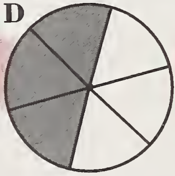
3. For a measure of the white part and the pink part of circle **B**, first think about one of the equal parts of circle **B**, one eighth ($\frac{1}{8}$). Then say, "-?- one eighths, or two eighths, of circle **B** are white and -?- are pink."

4. Circle **C** is divided into -?- equal parts, so one of the equal parts is one -?-. Three equal parts, or 3 -?-, of **C** are gray and 2 equal parts, or 2 -?-, of **C** are white.

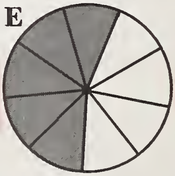
C



D

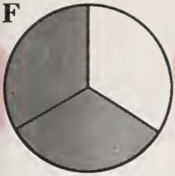


E

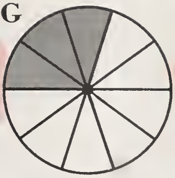


5–6. Tell for circles **D** and **E** what you told for **C**.

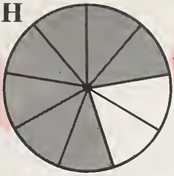
F



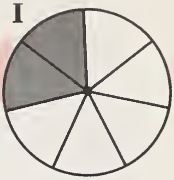
G



H



I



7. Tell the size of one of the equal parts of circles **F** to **I.** For each circle, tell what part is white. For each circle, tell what part is shaded (gray).

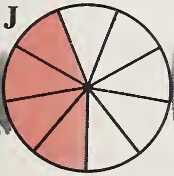
We say that 2 sevenths of circle **I** are shaded and 5 sevenths are white. We write 2 sevenths as $\frac{2}{7}$ and 5 sevenths as $\frac{5}{7}$.

8. What does the 7 below the fraction line in $\frac{2}{7}$ tell us? What does the 2 above the fraction line in $\frac{2}{7}$ tell us? What does the 5 in $\frac{5}{7}$ mean?

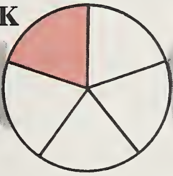
9. Which fraction below names the white part of circle **J**? Why? of circle **K**?

a. $\frac{6}{3}$ **b.** $\frac{2}{8}$ **c.** $\frac{3}{9}$ **d.** $\frac{4}{5}$ **e.** $\frac{1}{6}$ **f.** $\frac{5}{9}$

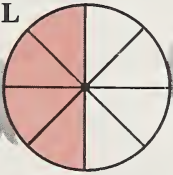
J



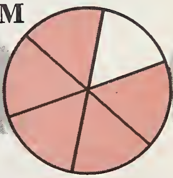
K



L



M



10. In which of circles **J** to **M** is $\frac{5}{6}$ pink?

11. In which circle is $\frac{1}{5}$ pink?

12. Name with fractions the pink parts of circles **J** to **M.** Tell how to write the fractions.

13. Make a rule to explain the meaning of the numbers above and below the fraction line.

Working with the New Kind of Fraction

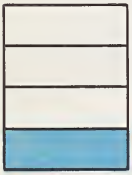
Writing in figures and words; drawing to show fractions [W]

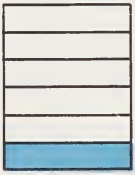
Write these fractions in figures:

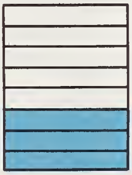
1. two thirds
2. five sixths
3. two ninths
4. four fifths
5. three tenths
6. two fourths

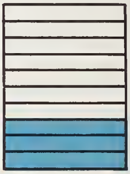
Write these fractions in words:

7. $\frac{4}{5}$ 8. $\frac{2}{7}$ 9. $\frac{3}{4}$ 10. $\frac{6}{8}$ 11. $\frac{5}{10}$ 12. $\frac{3}{6}$

A


B


C


D


13. For each of rectangles A to D, write the fraction which names the white part of the rectangle.

14. For each fraction you wrote, circle the number showing how many equal parts in the whole rectangle.

15. Which fraction you wrote shows the largest-sized equal parts? Which number helped you to tell?

In a fraction, the number below the line tells how many equal parts there are in the whole.

16. In each fraction you wrote for Ex. 13, cross out the number which shows how many equal parts of the rectangle are in the white part.

The number above the fraction line tells how many equal parts there are in the fraction.

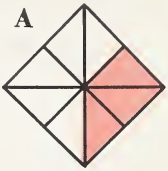
Draw four squares. Divide and color them to show

17. three fifths. 18. $\frac{2}{6}$. 19. two thirds. 20. $\frac{2}{4}$.

Naming the Figures in a Fraction

Terms of a fraction [O]

In **A**, $\frac{3}{8}$ of the square is red.

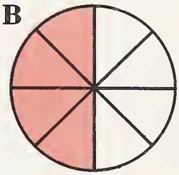


The 8 in $\frac{3}{8}$ is called the denominator of the fraction.

The word, "denominator", means "something which names." What name do you think of when you see the 8 in $\frac{3}{8}$?

The 3 in $\frac{3}{8}$ is the numerator of the fraction and tells the number of equal parts in the fraction. The word, "numerator", means "something which numbers."

1. In **A**, $\frac{5}{8}$ is not red. Tell about the denominator and the numerator of this fraction.



2. In **B**, what part is red? What is the numerator of this fraction? What is the denominator?

3. In the fraction $\frac{3}{4}$, 4 is the -?- and 3 is the -?-.

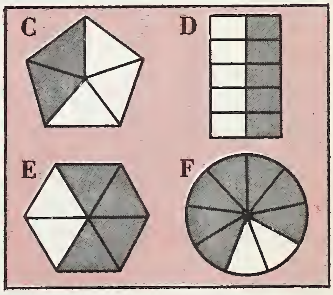
4. In $\frac{8}{9}$, the numerator is -?-.

5. In $\frac{4}{5}$, the -?- means that a thing is divided into -?- equal parts. One of the equal parts is -?-.

6. Write on the board the fraction which has the numerator 7 and denominator 8.

7. What is the numerator of the fraction that names the shaded part in **C**? in **D**?

8. What is the denominator of the fraction that names the shaded part in **E**? in **F**?



Sliding on the Hill

Problem-solving, differentiating processes [W]

After each number on your paper, write "A.", "S.", "M.", or "D." to show what to do to solve each problem. Do not solve the problems.

1. From the top of the hill to a tree at the bottom is just 382 feet. On one ride, Tom's sled carried him 35 feet past the tree. How many feet long was his ride?

2. Jim fell off his sled half way down the 382-foot hill. About how many feet did he ride?

3. How far did Mary ride? Her sled upset when she had gone 75 feet less than the 382 feet.

4. Mary pulled her sled 5 times from the tree to the top of the hill (382 feet). How many feet did she have to walk for her 5 rides?

5. The picture shows Jack's big bobsled going down the hill. For 40 children each to have a ride on it, how many trips would the sled make?

6. Tom counted 75 people on the hill one day and found that $\frac{1}{5}$ of them were grownups. How many on the hill that day were grownups?

Oral Practice

Say these answers by rows and by columns:

	a	b	c	d
1.	5 × 8 + 4	8 × 4 + 6	33 ÷ 5	29 ÷ 9
2.	9 × 3 + 7	5 × 9 + 4	43 ÷ 8	30 ÷ 4
3.	6 × 5 + 4	7 × 4 + 3	37 ÷ 4	33 ÷ 6
4.	7 × 3 + 3	5 × 5 + 3	30 ÷ 7	21 ÷ 9
5.	8 × 5 + 6	4 × 8 + 2	28 ÷ 6	29 ÷ 5
6.	5 × 6 + 3	9 × 4 + 6	26 ÷ 4	38 ÷ 7
7.	5 × 4 + 4	6 × 3 + 3	39 ÷ 9	28 ÷ 3
8.	6 × 4 + 4	5 × 7 + 4	30 ÷ 8	47 ÷ 9
9.	3 × 8 + 2	8 × 3 + 5	38 ÷ 5	20 ÷ 6
10.	7 × 5 + 4	9 × 5 + 6	24 ÷ 7	36 ÷ 8

Written Practice

Copy, work, and check. Watch the signs!

1. 111 + 865
2. 114 ÷ 8
3. 4 × 78
4. 407 – 396
5. 475 × 3
6. 155 + 607
7. 202 ÷ 9
8. 684 – 574
9. 156 × 4
10. $9.45 ÷ 7
11. 489 ÷ 9
12. 3 × 289
13. $4.70 ÷ 5
14. 4 × $2.26
15. $8.75 + $38.96
16. $7.68 ÷ 2
17. $30.00 – $16.47
18. 378 + 459 + 68
19. Write all the subtraction facts for 12.

Do You Understand?

Test of Information and Meaning 3

1. Write the table number to use in Ex. a to d.

a. $4\overline{)39}$ **b.** $7\overline{)37}$ **c.** $6\overline{)33}$ **d.** $5\overline{)47}$

2. In Ex. a to d below, copy the dividend figures which you use for the first division. For a, write "21."

a. $5\overline{)216}$ **b.** $5\overline{)937}$ **c.** $5\overline{)762}$ **d.** $5\overline{)379}$

3. Show what should be written to check Ex. a to d below. Do not work the examples.

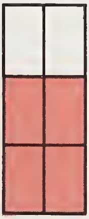
a. $\begin{array}{r} 39 \\ \times 5 \\ \hline 195 \end{array}$ **b.** $\begin{array}{r} 87 \\ \times 2 \\ \hline 174 \end{array}$ **c.** $\begin{array}{r} 32 \\ 3\overline{)96} \end{array}$ **d.** $\begin{array}{r} 13 \\ 5\overline{)65} \end{array}$

4. Name one of the equal parts in **A**; in **B**.

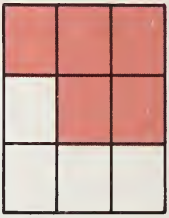
5. Write in figures the fraction that tells the pink part in **A**; in **B**. Circle the numerators you wrote.

6. Write in words the fraction that tells the white part in **A**; in **B**.

A



B



7. You have not learned the product for 6 × 7. Make X's in rows and columns to help you find the product.

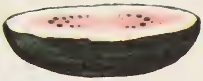
8. $48 \div 6 = 8$. Check the answer by subtracting.

9. What two M. facts go with the D. fact in Ex. 8?

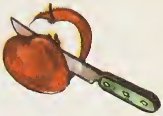
10. To find the factor **n** in $3 \times \mathbf{n} = 81$ do you use Ex. a or b or c below?

a. 3×81 **b.** $81 \div 3$ **c.** $n \times 81$

11. Estimate these answers: **a.** $31 + 48$ **b.** $58 - 31$



On your paper write the missing words or figures to make each exercise correct.



12. One half of an apple is smaller than one half of a _?_.

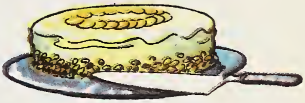
13. In $7 \times 23 = 161$, the factors are _?_ and _?_.

14. To find the answer for the example $\frac{1}{7}$ of 35, you divide _?_ by _?_.

15. Joe ate 3 of 5 equal pieces of an orange. The fraction for the part of the orange Joe ate is _?_.

16. In the example, $164 \div 4 = 41$, _?_ is the divisor and _?_ is the quotient.

17. When you cut $\frac{3}{4}$ of a cake, the name of one of the equal parts is _?_.



Test Yourself 7

[W]

Copy and work carefully. Do not check.

1. $\begin{array}{r} 274 \\ \times 3 \\ \hline \end{array}$ **2.** $\begin{array}{r} 4{,}020 \\ -946 \\ \hline \end{array}$ **3.** $\begin{array}{r} 45 \\ \times 6 \\ \hline \end{array}$ **4.** $\begin{array}{r} 248 \\ +753 \\ \hline \end{array}$

5. $4\overline{)912}$ **6.** $3\overline{)997}$ **7.** $8\overline{)424}$ **8.** $2\overline{)157}$

9. $\begin{array}{r} 513 \\ -419 \\ \hline \end{array}$ **10.** $\begin{array}{r} 124 \\ \times 7 \\ \hline \end{array}$ **11.** $\begin{array}{r} 239 \\ \times 4 \\ \hline \end{array}$ **12.** $\begin{array}{r} 869 \\ -367 \\ \hline \end{array}$

13. $7\overline{)108}$ **14.** $6\overline{)313}$ **15.** $5\overline{)745}$ **16.** $9\overline{)381}$

17. $72 + 69 + 148 + 7$ **19.** $552 + 389 + 874$

18. $491 + 375 + 999$ **20.** $207 + 453 + 538$

Do You Make Mistakes?

Diagnostic Test 3

Copy the examples and solve.

	a	b	c	Study Pages	Practice Sets
1.	4,899 +758	839 +3,643	2,406 +3,708	112	16
2.	1,716 −908	3,542 −2,596	6,000 −487	114, 116	17
3.	$\frac{1}{5}$ of 40	$\frac{1}{7}$ of 35	$\frac{1}{9}$ of 45	129	30
4.	44 ÷ 5	$5\overline{)98}$	$6\overline{)922}$	134–136	32
5.	Check these answers: a. 5×79=385	b. 6×54=324		63, 67, 124	29
6.	Check these answers: a. 425÷5=85	b. 325÷6=54, R1		88–93, 131	30

Can You Solve Problems?

Problem Test 3

Write your work for Ex. 1 to 8. Check all answers.

1. This month, May's school lunches cost $3.15. Last month she spent $0.63 less, or $? .

2. May spent $\frac{1}{5}$ of her $3.15 for milk. How much did she pay for the milk she drank?

3. Jean paid $4.23 for lunches last month. This month she paid $0.69 more. What was the cost of her lunches this month?

4. The lunchroom has places for 112 children at one time, seated 8 at a table. How many tables are there?

5. On her birthday, Betty took some friends to lunch. The lunches cost 25¢, 33¢, 38¢, and 34¢. How much did Betty pay for the lunches?

6. Joe works in the lunchroom 45 minutes a day. In a school week of 5 days, how many minutes does he work?

7. Joe saved $3.96 in 4 weeks to buy a big cowboy hat. Each week he saved the same amount. How much money was that a week?

8. Joe saved 75¢ each month. In 5 months, how much money did he save?

How Well Can You Figure?

Computation Test 3

Copy. Find and check your answers.

1. $5\overline{)378}$ **2.** $4\overline{)191}$ **3.** $5\overline{)\$8.25}$ **4.** $2\overline{)\$7.69}$

5. $\begin{array}{r} \$3.49 \\ \times 4 \\ \hline \end{array}$ **6.** $\begin{array}{r} \$3.25 \\ \times 3 \\ \hline \end{array}$ **7.** $\begin{array}{r} 630 \\ -531 \\ \hline \end{array}$ **8.** $\begin{array}{r} \$9.65 \\ +8.38 \\ \hline \end{array}$

9. $\begin{array}{r} 135 \\ \times 5 \\ \hline \end{array}$ **10.** $\begin{array}{r} \$1.13 \\ \times 7 \\ \hline \end{array}$ **11.** $\begin{array}{r} 4{,}117 \\ -3{,}668 \\ \hline \end{array}$ **12.** $\begin{array}{r} 5{,}019 \\ +3{,}990 \\ \hline \end{array}$

13. $9\overline{)389}$ **14.** $3\overline{)295}$ **15.** $4\overline{)999}$ **16.** $6\overline{)271}$

17. Two dollars and forty-eight cents ÷ 4 = ?

18. 37¢ + 68¢ + 79¢ + 85¢ = ?

19. 5 × one dollar and twenty-three cents = ?

4

NOW PLAYING
Reviv l
ALICE
WONDER AND
also
2 SHO RT
SUB ECTS
ADULTS 60¢
CHILDREN 35¢

At the Movies

Problem-solving; making problems [W]

First, read all the way through the story on this page about going to the movies. Then see if you can do what you are asked to do.

Last summer Sue, Joan, and Mary earned $2.25 one week. In the picture, Mary is giving the ticket seller $1.50 of their money to pay for 3 tickets.

The building has 600 seats. Of the 600 seats, 84 are in the first 6 rows, with the same number of seats in each row. The next 8 rows have 24 seats in each row.

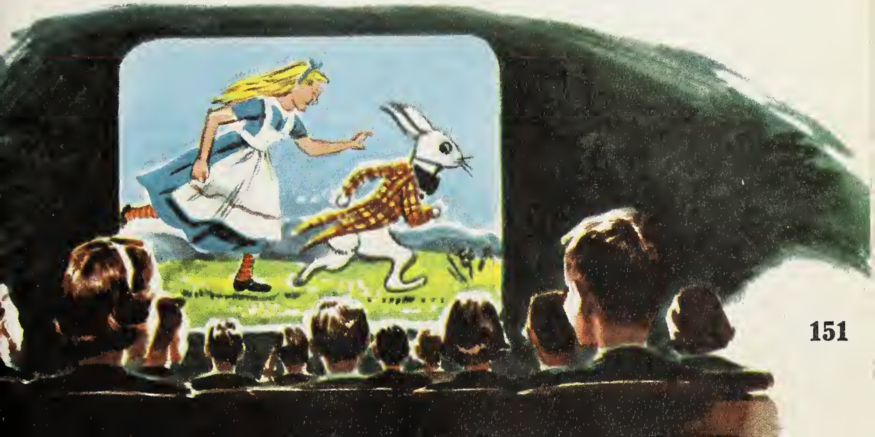
The girls were early. When they went in, Joan counted only 35 people in the 600 seats. Toward the end of the show, Joan counted only 18 empty seats.

The two short pictures lasted 26 min. altogether. The long picture lasted 4 times as long.

See if you can make 8 problems using the story. For example, you can make 2 problems about Mary buying the tickets.

Solving problems [W]

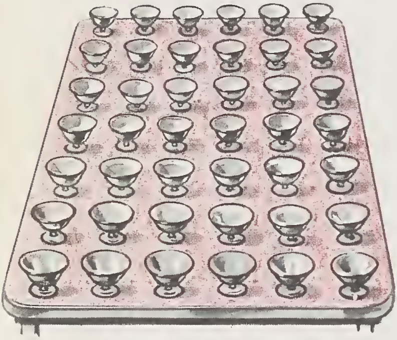
Turn to page 144. Write the work for problems 1 to 6. Check all your answers.



Finding Parts of Whole Stories

M. and D. facts [O]

1. This table in Mr. Hill's store has how many glasses in each row? how many rows of glasses? how many glasses in all?

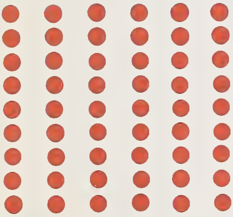


Count glasses by rows of 6. 6, 12, 18, 24, 30, _?_, _?_. Say the multiplication fact for seven 6's.

2. The glasses are in _?_ columns, with _?_ glasses in each column. Say the M. fact for six 7's.

3. Use your work in Ex. 1 and 2 to tell answers for

a. 6's in 42 (42 ÷ 6); **b.** 7's in 42 (42 ÷ 7).



4. The dot picture stands for 54 glasses, 9 rows of _?_ each or 6 columns of _?_ each. This makes the whole story in multiplication and division.

5. Finish and say the facts.

6 × 9 9 × 6 54 ÷ 9 54 ÷ 6

6. Another table has 48 glasses in 6 rows of 8 glasses each. On the board make rows of dots. _?_ 8's = 48.

Finish and say the facts.

6 × 8 8 × 6 48 ÷ 6 48 ÷ 8

7. Still another table has 36 glasses in 6 equal rows. On the board make 36 dots in rows. 6 _?_'s = 36.

Finish and say the facts. 36 ÷ 6 6 × 6

[W]

8. Tom packs 6 peaches in a box. For 30 peaches, how many boxes will he need?
30 ÷ 6 = ? Subtract 6's.

9. Write the three other facts that go with the fact in Ex. 8.

10. To fill 8 boxes with 6 of the peaches in each, Tom will need how many peaches?
8 × 6 = ? Add 6's.

11. Write three other facts that go with the fact you found in Ex. 10. There will be one in M. and two in D.

12. For 54 peaches, how many boxes will Tom need if he puts 6 peaches in each? 54 ÷ 6 = ? Subtract 6's.

13. Write three other facts that go with the fact you found in Ex. 12. There will be one in D. and two in M.

14. Mrs. Brown bought 7 boxes of peaches from Tom, 6 peaches in a box. In all she got how many peaches?
7 × 6 = ? Add 6's.

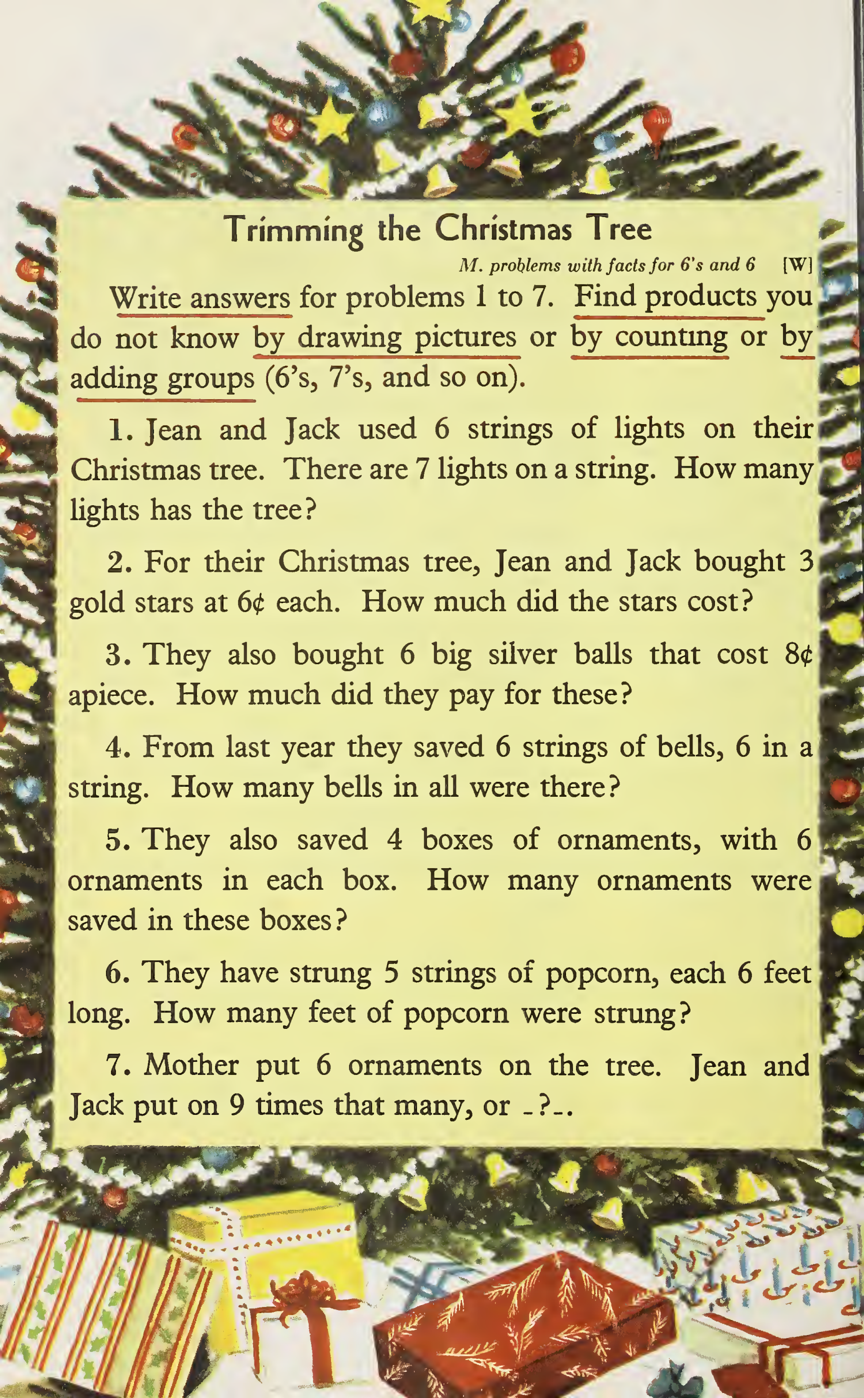
15. Write three other facts that go with the fact in Ex. 14. There will be one in M. and two in D.

16. 6 × 6 = ? Add 6's.

17. Write the whole story for the fact in Ex. 16.

Copy Ex. 18 to 21 and write answers for each. Then write the other facts in the whole story.

18. 24 ÷ 4 **19.** 6 × 3 **20.** 12 ÷ 2 **21.** 5 × 6



Trimming the Christmas Tree

M. problems with facts for 6's and 6 [W]

Write answers for problems 1 to 7. Find products you do not know by drawing pictures or by counting or by adding groups (6's, 7's, and so on).

1. Jean and Jack used 6 strings of lights on their Christmas tree. There are 7 lights on a string. How many lights has the tree?

2. For their Christmas tree, Jean and Jack bought 3 gold stars at 6¢ each. How much did the stars cost?

3. They also bought 6 big silver balls that cost 8¢ apiece. How much did they pay for these?

4. From last year they saved 6 strings of bells, 6 in a string. How many bells in all were there?

5. They also saved 4 boxes of ornaments, with 6 ornaments in each box. How many ornaments were saved in these boxes?

6. They have strung 5 strings of popcorn, each 6 feet long. How many feet of popcorn were strung?

7. Mother put 6 ornaments on the tree. Jean and Jack put on 9 times that many, or _?_.

Finding and Checking Products

M. facts for 6's and for 6 [W]

Some of the products in Ex. 1 to 10 are wrong. Check all the products by adding. Then copy Ex. 1 to 10 and write the correct products.

1. $\begin{array}{r} 6 \\ \times 6 \\ \hline 24 \end{array}$	2. $\begin{array}{r} 9 \\ \times 6 \\ \hline 44 \end{array}$	3. $\begin{array}{r} 6 \\ \times 7 \\ \hline 42 \end{array}$	4. $\begin{array}{r} 6 \\ \times 9 \\ \hline 45 \end{array}$	5. $\begin{array}{r} 6 \\ \times 8 \\ \hline 40 \end{array}$
6. $\begin{array}{r} 6 \\ \times 7 \\ \hline 35 \end{array}$	7. $\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$	8. $\begin{array}{r} 8 \\ \times 6 \\ \hline 35 \end{array}$	9. $\begin{array}{r} 7 \\ \times 6 \\ \hline 39 \end{array}$	10. $\begin{array}{r} 9 \\ \times 6 \\ \hline 54 \end{array}$

Copy the tables below without writing the products.

11. The examples in black are from M. tables you have had before. See if you can write these products in your tables without adding.

12. Now write the products for the colored examples in the table of 6's. You can add 6's.

M. Facts for 6's

1 × 6 = 6
2 × 6 = ?
3 × 6 = ?
4 × 6 = ?
5 × 6 = ?
6 × 6 = ?
7 × 6 = ?
8 × 6 = ?
9 × 6 = ?

M. Facts for 6

6 × 1 = 6
6 × 2 = ?
6 × 3 = ?
6 × 4 = ?
6 × 5 = ?
6 × 6 = ?
6 × 7 = ?
6 × 8 = ?
6 × 9 = ?

13. Then write the products for the colored examples in the table of M. facts for 6. You can use the finished table of 6's to help you.

Study the facts in the multiplication tables for 6's and for 6 until you know them.

Think, "One 6 = 6, two 6's = 12," and so on.

Oral Practice

Without looking at your tables, say the products.

	a	b	c	d	e	f	g	h	i	j
1.	6 ×4	9 ×5	3 ×6	6 ×5	7 ×4	6 ×8	2 ×6	9 ×4	7 ×6	5 ×5
2.	8 ×5	7 ×3	8 ×4	7 ×5	2 ×8	3 ×9	5 ×8	6 ×2	4 ×5	4 ×7
3.	5 ×6	4 ×8	5 ×9	9 ×3	5 ×7	6 ×9	6 ×3	3 ×8	8 ×6	5 ×4
4.	9 ×6	3 ×7	6 ×6	3 ×5	4 ×6	9 ×2	8 ×3	4 ×9	6 ×7	2 ×9

Make and use study cards for hard facts.

➤ **Extra Practice.** Work Set 34.

Test Yourself 8

[W]

Copy and work. Do not check.

1. 642 393	2. $1.45 ×7	3. 911 −867	4. 184 ×5
5. $1.26 ×6	6. 609 +398	7. $1.24 ×8	8. $93.05 −87.96
9. 6)261	10. 5)823	13. 563 958 4,807 +1,389	14. $5.79 0.64 8.52 +0.57
11. 4)394	12. 8)419		

Multiplication Facts for 6's

6	6	6	6	6	6	6	6	6
×1	×2	×3	×4	×5	×6	×7	×8	×9
6	12	18	24	30	36	42	48	54

Multiplication Facts for 6

1	2	3	4	5	6	7	8	9
×6	×6	×6	×6	×6	×6	×6	×6	×6
6	12	18	24	30	36	42	48	54

Study the facts in the tables until you know them.

Oral and Written Practice

Practice for carrying [O]

Say the answers by rows and by columns.

	a	b	c	d
1.	6 × 5 + 4	6 × 9 + 5	6 × 7 + 3	8 × 2 + 1
2.	8 × 6 + 3	3 × 8 + 2	7 × 4 + 2	9 × 6 + 5
3.	6 × 7 + 4	6 × 5 + 5	8 × 6 + 4	6 × 8 + 4
4.	5 × 9 + 4	6 × 8 + 5	7 × 6 + 5	5 × 8 + 3
5.	6 × 6 + 5	5 × 6 + 4	7 × 3 + 4	3 × 6 + 2
6.	4 × 6 + 3	7 × 6 + 4	9 × 5 + 6	7 × 5 + 4
7.	9 × 4 + 3	4 × 8 + 3	6 × 6 + 4	4 × 5 + 3

[W]

Multiply. Do each example a second time.

8. Find 6 times	**a.** 409	**b.** 785	**c.** 346
9. Find 4 times	**a.** 256	**b.** 163	**c.** 640
10. Find 5 times	**a.** 847	**b.** 196	**c.** 253
11. Find 6 times	**a.** 98	**b.** 670	**c.** 534

Test Yourself 9

[W]

Turn to page 156. Cover the tables on page 157. Write just the products for the examples in rows 1 to 4 at the top of page 156. Use folded paper.

Watching the Carpenter

D. facts with divisor 6 and quotient 6 [O]

1. A carpenter wants 54 equal short boards. He can get 6 of them by sawing up a long board. How many of the long boards would he need for 54 of the short boards?

54 ÷ 6 = ? Tell how to get the answer by

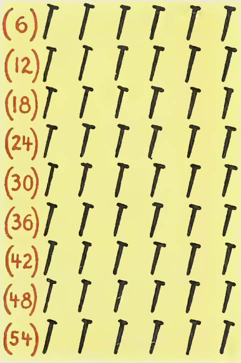
a. subtracting 6's from 54. (6's in 54 = ?)

b. using a multiplication fact for 6's. (Which one?)

Remember, 6 equal short boards can be cut from each long board. Tell two ways to find how many long boards the carpenter would need for

2. 36 short boards. **4.** 30 short boards.

3. 48 short boards. **5.** 42 short boards.



Use this picture of Tom's nails. For Ex. 6 and 7, cover all the rows below 42.

6. 42 nails make _?_ rows of 6 nails each. 42 ÷ 6 = ?

7. 42 nails make _?_ columns of 7 nails each. 42 ÷ 7 = ?

Cover the rows of nails you do not need and find answers for these examples:

8. 30 ÷ 6 **10.** 54 ÷ 6 **12.** 48 ÷ 6 **14.** 24 ÷ 6

9. 30 ÷ 5 **11.** 54 ÷ 9 **13.** 48 ÷ 8 **15.** 24 ÷ 4

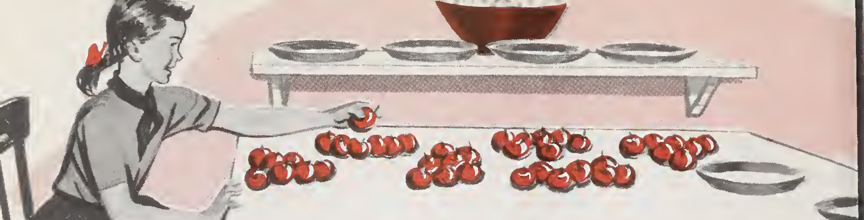
[W]

Some of these quotients are wrong. Check all quotients by using multiplication facts or by subtracting. Then copy Ex. 16 to 30 and write the correct quotients.

16. $\begin{array}{r}3\\6\overline{)24}\end{array}$ **19.** $\begin{array}{r}8\\6\overline{)36}\end{array}$ **22.** $\begin{array}{r}6\\7\overline{)42}\end{array}$ **25.** $\begin{array}{r}5\\6\overline{)54}\end{array}$ **28.** $\begin{array}{r}8\\7\overline{)42}\end{array}$

17. $\begin{array}{r}5\\8\overline{)48}\end{array}$ **20.** $\begin{array}{r}4\\6\overline{)42}\end{array}$ **23.** $\begin{array}{r}8\\6\overline{)54}\end{array}$ **26.** $\begin{array}{r}7\\6\overline{)30}\end{array}$ **29.** $\begin{array}{r}6\\8\overline{)48}\end{array}$

18. $\begin{array}{r}5\\6\overline{)30}\end{array}$ **21.** $\begin{array}{r}6\\6\overline{)48}\end{array}$ **24.** $\begin{array}{r}6\\6\overline{)24}\end{array}$ **27.** $\begin{array}{r}7\\6\overline{)42}\end{array}$ **30.** $\begin{array}{r}9\\6\overline{)48}\end{array}$



Finding Parts of a Group

$\frac{1}{6}$ of a group [O]

1. Joan's mother has 42 apples of about the same size to use in making 6 big pies for a club supper. How many apples can she use for each pie?

The question is, How many are in each $\frac{1}{6}$ of 42?

A way to find out is to finish the fact for $42 \div 6$.

What M. fact can you use to get the answer? Explain.

2. If Joan's mother had to make 6 pies out of 36 apples, how many apples could she use in each pie?

Each $\frac{1}{6}$ of 36 = ? $36 \div 6 = ?$

What M. fact can you use to get the answer?

For Ex. 3 to 8, tell the division example you can use. For Ex. 3 say, "24 divided by 4."

3. $\frac{1}{4}$ of 24
4. $\frac{1}{6}$ of 48
5. $\frac{1}{5}$ of 30
6. $\frac{1}{6}$ of 18
7. $\frac{1}{4}$ of 28
8. $\frac{1}{6}$ of 24

What M. fact can you use with each example above?

[W]

Copy Ex. 9 to 17 and write the answers. Use a division fact or a multiplication fact each time as a helper.

9. $\frac{1}{6}$ of 36
10. $\frac{1}{6}$ of 48
11. $\frac{1}{6}$ of 30
12. $\frac{1}{6}$ of 12
13. $\frac{1}{5}$ of 35
14. $\frac{1}{6}$ of 18
15. $\frac{1}{6}$ of 54
16. $\frac{1}{6}$ of 24
17. $\frac{1}{6}$ of 42

Extra Practice. Work Set 35.

Division Facts with Divisor or Quotient 6

[W]

1. The tables for the division facts having 6 as the divisor or as the quotient are started in the boxes at the right. Copy these tables and finish them.

HELPER: You may use multiplication facts to help you find the quotients.

Division Facts Divisor 6

6 ÷ 6 = 1
12 ÷ 6 = 2
18 ÷ 6 = ?
and so on to
54 ÷ 6 = 9

Division Facts Quotient 6

6 ÷ 1 = 6
12 ÷ 2 = 6
18 ÷ 3 = ?
and so on to
54 ÷ 9 = 6

2. With a piece of paper, cover the quotients in the tables you made for Ex. 1 and write the quotients again.

3. The boxes below show how to make fraction-fact tables by using division-fact tables. Copy and finish.

Division Facts Divisor 6	Fraction Facts
6 ÷ 6 = 1	$\frac{1}{6}$ of 6 = 1
12 ÷ 6 = 2	$\frac{1}{6}$ of 12 = 2
18 ÷ 6 = ?	$\frac{1}{6}$ of 18 = ?
24 ÷ 6 = ?	$\frac{1}{6}$ of 24 = ?
30 ÷ 6 = ?	$\frac{1}{6}$ of 30 = ?
36 ÷ 6 = ?	$\frac{1}{6}$ of 36 = ?
42 ÷ 6 = ?	$\frac{1}{6}$ of 42 = ?
48 ÷ 6 = ?	$\frac{1}{6}$ of 48 = ?
54 ÷ 6 = ?	$\frac{1}{6}$ of 54 = ?

Division Facts Quotient 6	Fraction Facts
6 ÷ 1 = 6	
12 ÷ 2 = 6	$\frac{1}{2}$ of 12 = 6
18 ÷ 3 = ?	$\frac{1}{3}$ of 18 = ?
24 ÷ 4 = ?	$\frac{1}{4}$ of 24 = ?
30 ÷ 5 = ?	$\frac{1}{5}$ of 30 = ?
36 ÷ 6 = ?	$\frac{1}{6}$ of 36 = ?
42 ÷ 7 = ?	$\frac{1}{7}$ of 42 = ?
48 ÷ 8 = ?	$\frac{1}{8}$ of 48 = ?
54 ÷ 9 = ?	$\frac{1}{9}$ of 54 = ?

[O]

4. Say the facts for the tables just above, first by rows and then by columns.

Division Facts, Divisor 6

$\begin{array}{r}1\\6\overline{)6}\end{array}$	$\begin{array}{r}2\\6\overline{)12}\end{array}$	$\begin{array}{r}3\\6\overline{)18}\end{array}$	$\begin{array}{r}4\\6\overline{)24}\end{array}$	$\begin{array}{r}5\\6\overline{)30}\end{array}$	$\begin{array}{r}6\\6\overline{)36}\end{array}$	$\begin{array}{r}7\\6\overline{)42}\end{array}$	$\begin{array}{r}8\\6\overline{)48}\end{array}$	$\begin{array}{r}9\\6\overline{)54}\end{array}$

Division Facts, Quotient 6

$\begin{array}{r}6\\1\overline{)6}\end{array}$	$\begin{array}{r}6\\2\overline{)12}\end{array}$	$\begin{array}{r}6\\3\overline{)18}\end{array}$	$\begin{array}{r}6\\4\overline{)24}\end{array}$	$\begin{array}{r}6\\5\overline{)30}\end{array}$	$\begin{array}{r}6\\6\overline{)36}\end{array}$	$\begin{array}{r}6\\7\overline{)42}\end{array}$	$\begin{array}{r}6\\8\overline{)48}\end{array}$	$\begin{array}{r}6\\9\overline{)54}\end{array}$

In the tables above, the D. facts in color are the only ones you should have to learn because the others were in D. tables you had earlier. Make study cards for hard facts.

Making Your Own Problems

A., S., M., D. [O]

Ex. 1 to 6 tell you things about the Ford family. For each one, ask a question that would make a good problem in A., S., M., or D. Do not solve.

1. In all, the Ford family uses 28 quarts of milk a week. M.

HELPER: A question might be: How many quarts of milk do they use in 4 weeks?

2. The Ford family uses 28 quarts of milk a week. HELPER: 1 week = 7 days. D.

3. The Fords use 28 quarts of milk a week. The Reeds use 35 quarts a week. S.

4. The Fords use 28 quarts of milk a week, the Reeds use 35 quarts, and the Blacks use 42 quarts. A.

5. Jane wants to save $2.50 in 5 weeks. D.

6. Jane has saved all but 50¢ of her $2.50. S.

Finding n in Division Facts

[O]

1. In box **A**, tell what number each **n** stands for. Also, tell how you know what **n** stands for.

2. Do the same for each example in box **B**.

In rows 3 to 6 below, tell what **n** stands for. Also tell how you know what **n** stands for.

A	B
12 ÷ 2 = 6	15 ÷ 3 = 5
n ÷ 2 = 6	**n** ÷ 3 = 5
12 ÷ **n** = 6	15 ÷ **n** = 5
12 ÷ 2 = **n**	15 ÷ 3 = **n**
n = 12 ÷ 2	**n** = 15 ÷ 3
n = 12 ÷ 6	**n** = 15 ÷ 5

	a	b	c	d
3.	12 ÷ 4 = n	n ÷ 4 = 3	n = 14 ÷ 2	12 ÷ 3 = n
4.	n ÷ 9 = 2	n = 9 ÷ 3	21 ÷ n = 7	n = 24 ÷ 6
5.	18 ÷ n = 6	6 ÷ 2 = n	n = 28 ÷ 7	42 ÷ n = 7
6.	n ÷ 7 = 2	n ÷ 2 = 5	18 ÷ n = 3	5 = n ÷ 6

[W]

On folded paper, write just the numbers for **n**.

7.	12 ÷ n = 6	42 ÷ n = 6	n ÷ 6 = 2	15 ÷ n = 5
8.	n ÷ 4 = 5	24 ÷ n = 3	7 = n ÷ 5	28 ÷ n = 7
9.	10 ÷ 5 = n	n = 15 ÷ 5	27 ÷ n = 9	n = 40 ÷ 8
10.	16 ÷ n = 2	16 ÷ n = 8	n = 8 ÷ 2	n ÷ 6 = 6
11.	n ÷ 5 = 4	n = 8 ÷ 4	8 = n ÷ 3	5 = 45 ÷ n
12.	32 ÷ 8 = n	n ÷ 7 = 3	n ÷ 8 = 6	n = 24 ÷ 4
13.	$\frac{1}{6}$ of 48 = n	$\frac{1}{5}$ of 30 = n	$\frac{1}{3}$ of 27 = n	$\frac{1}{2}$ of 18 = n
14.	$\frac{1}{9}$ of 54 = n	$\frac{1}{9}$ of 45 = n	$\frac{1}{7}$ of 35 = n	$\frac{1}{4}$ of 36 = n

Uneven Division

Using table numbers when divisor or quotient is 6 [O]

Below are the table numbers for dividing by 6.

6 12 18 24 30 36 42 48 54

Which table numbers should you use in Ex. 1 to 4?

1. 45 ÷ 6 2. 37 ÷ 6 3. 57 ÷ 6 4. 50 ÷ 6

In Ex. 5 to 7, you are to find the table numbers for dividing by 7, 8, and 9. For help, turn to page 162 and use the table of D. facts with quotient 6.

5. Dividing by 7. To divide 43, 44, 45, 46, 47, or 48 by 7, what table number do you use?

6. Dividing by 8. To divide 49, 50, 51, 52, 53, 54, or 55 by 8, what table number do you use?

7. Dividing by 9. To divide 55, 56, 57, 58, 59, 60, 61, or 62 by 9, what table number do you use?

Say answers only in rows 8 to 10.

	a	b	c	d	e
8.	33 ÷ 6	55 ÷ 9	29 ÷ 6	45 ÷ 8	32 ÷ 9
9.	47 ÷ 7	52 ÷ 6	44 ÷ 7	39 ÷ 7	32 ÷ 6
10.	50 ÷ 8	43 ÷ 5	48 ÷ 9	53 ÷ 8	40 ÷ 7

[W]

Copy and divide. Check all answers.

11. $7\overline{)955}$
12. $2\overline{)515}$
13. $5\overline{)983}$
14. $6\overline{)282}$
15. $9\overline{)478}$
16. $4\overline{)259}$
17. $8\overline{)417}$
18. $7\overline{)319}$
19. $6\overline{)413}$
20. $6\overline{)166}$
21. $7\overline{)311}$
22. $6\overline{)391}$
23. $6\overline{)\$4.07}$
24. $9\overline{)\$5.54}$
25. $5\overline{)\$2.43}$
26. $7\overline{)\$1.86}$

➲ **Extra Practice.** Work Set 36.

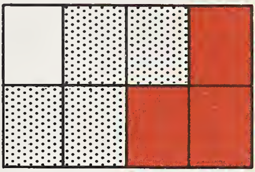
So You Won't Forget!

Review of Meanings [W]

For Ex. 1 to 4, estimate answers. One of the three underlined numbers is almost correct. Copy it.

1. 47 + 31   80   60   30   **3.** 59 − 18   80   20   40
2. 72 − 48   60   20   40   **4.** 28 + 39   30   50   70

5. Show how to find **n** in 448 = n × 4.



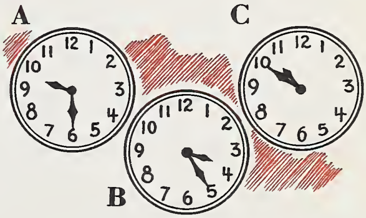
Write a fraction to tell what part of the rectangle is

6. dotted.   **7.** white.   **8.** red.

Write the letter of the clock that shows

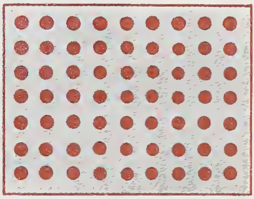
9. 25 min. past 3.

10. 10 min. before 11.



11. Draw a clock face to show 20 min. after the time on clock **C**.

12. This dot picture has 7 rows of 9 dots, and 9 columns of 7 dots, or 63 dots in all. Write the whole story in M. and D. for the dot picture.



Write an example in which

13. 4 is the divisor.   **14.** 6 and 18 are factors.

15. Draw a circle. Shade $\frac{3}{8}$ of it.

16. Make 18 X's. Draw a ring around $\frac{1}{6}$ of them.

Read Problems Carefully

[W]

After each number on your paper write only "A.", "S.", "M.", or "D." to tell how to solve the problem.

1. Mr. Black bought each of his 3 boys a pair of shoes at $7.35 a pair. What was the total cost of the shoes?

2. Tom's shoes wore out after 200 days. His brother Bill's wore out in 189 days. How many more days did Tom's shoes wear than Bill's?

3. Tom and his father started out on an automobile trip of 975 miles. They stopped for gasoline after going 270 miles. How many miles did they still have to go?

4. They drove the 975 miles in 3 days. If they drove the same number of miles each day, how many miles a day did they drive?

5. Tom told his father that he could read 205 words a minute. How many words could Tom read in 6 minutes?

6. If Tom learns to read 89 words more a minute, how many words a minute will he read then?

7. Tom spent $\frac{1}{5}$ of his $1.65 while on the trip. How much of his money did he spend?

To Keep in Practice

[W]

Check each answer after you find it.

1 to 6. Add 5,967 to each number below.

768 395 876 258 109 687

7 to 12. Divide each number above by 6.

13 to 18. Subtract 589 from each number below.

934 857 3,578 2,128 6,000 1,010

19 to 24. Subtract 798 from each number above.

25. Multiply by 8: **a.** 606 **b.** 143 **c.** 215
26. Divide by 7: **a.** 115 **b.** 164 **c.** 315
27. Divide by 9: **a.** 590 **b.** 122 **c.** 578

Our Health Club

Making problems [O]

There are 40 children in our Health Club. Last September, 16 weighed less than they should have.

But in 3 months, $\frac{1}{2}$ of these 16 children had started to gain.

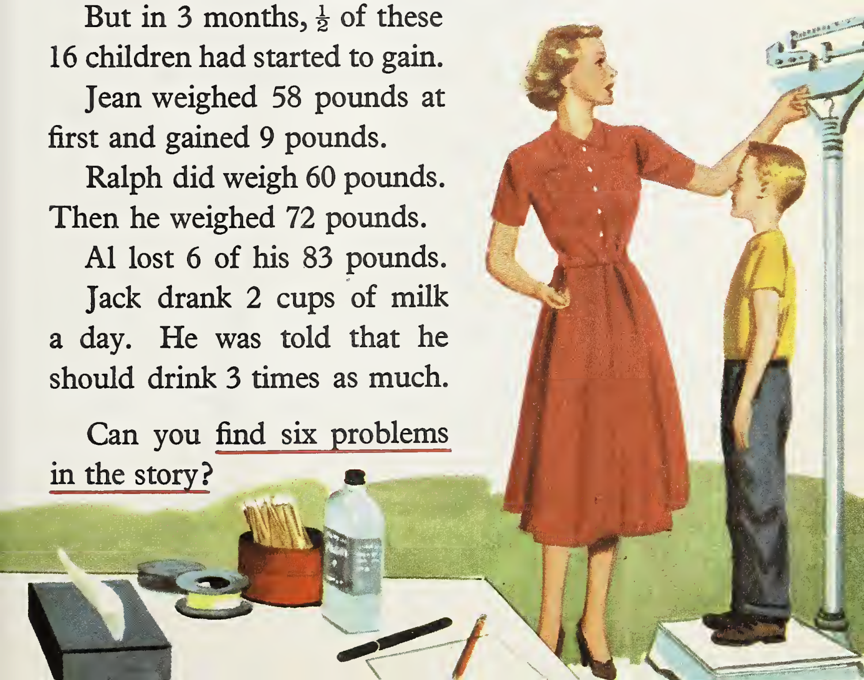
Jean weighed 58 pounds at first and gained 9 pounds.

Ralph did weigh 60 pounds. Then he weighed 72 pounds.

Al lost 6 of his 83 pounds.

Jack drank 2 cups of milk a day. He was told that he should drink 3 times as much.

Can you find six problems in the story?



Written Practice

Copy and work. Check all answers.

1. $\begin{array}{r} 305 \\ \times 7 \\ \hline \end{array}$ 2. $\begin{array}{r} 810 \\ -279 \\ \hline \end{array}$ 3. $\begin{array}{r} \$9.05 \\ \times 3 \\ \hline \end{array}$ 4. $\begin{array}{r} \$48.77 \\ -41.89 \\ \hline \end{array}$

5. $8\overline{)115}$ 6. $6\overline{)152}$ 7. $5\overline{)\$4.45}$ 8. $7\overline{)\$1.47}$

9. $\begin{array}{r} 900 \\ -646 \\ \hline \end{array}$ 10. $\begin{array}{r} \$8.62 \\ -7.59 \\ \hline \end{array}$ 11. $\begin{array}{r} \$2.60 \\ \times 8 \\ \hline \end{array}$ 12. $\begin{array}{r} \$3.24 \\ \times 9 \\ \hline \end{array}$

13. $3\overline{)261}$ 14. $9\overline{)406}$ 17. $\begin{array}{r} 348 \\ 1{,}539 \\ +2{,}590 \\ \hline \end{array}$ 18. $\begin{array}{r} 437 \\ 588 \\ 379 \\ +706 \\ \hline \end{array}$

15. $4\overline{)315}$ 16. $5\overline{)233}$

What Is Wrong?

[O]

What is wrong in the exercises below?

1. Dick lives 2 miles from school. It takes him 3 times as long to ride his bicycle as to walk to school.

2. Joe has his breakfast at 7:30 P.M.

3. Jean is 4 years old. Her father is 6 times as old. When Jean is 6, her father will be 6 times as old, or 36.

4. Mike had to saw across a long board 6 times in order to divide the board into 6 equal pieces.

5. Dick said he could run 100 yards more quickly than he could run 100 feet.

A

$$\begin{aligned} & 60 \div 3 \\ = \; & 6 \text{ tens} \div 3 \\ = \; & 2 \text{ tens} \\ = \; & 20 \end{aligned}$$

B

$$\begin{array}{r} 20 \\ 3\overline{)60} \\ \underline{6} \\ 00 \end{array}$$

0 in the Quotient

[W]

1. Study box **A** and box **B.** In box **B,** think: "There are 2 three's in 6." Write 2 in the quotient above the 6, in ten's place. In one's place, 0 shows there is nothing to divide. Just write 0 in one's place of the quotient. This makes the 2 mean 2 tens, or 20.

Work Ex. 2 to 5 as shown in box **B.**

2. 60 ÷ 2

3. 40 ÷ 2

4. 90 ÷ 3

5. 80 ÷ 4

A small number ÷ a larger number

6. Sue had just 3 cups to divide among her 4 dolls. Could she give 1 cup to each doll?

$$\begin{array}{r} 0, \text{ R}3 \\ 4\overline{)3}\phantom{, \text{ R}3} \end{array}$$

$\frac{1}{4}$ of 3 = 3 ÷ 4

Sue could not divide 3 cups among 4 dolls. As in the box, we show the work by writing the quotient 0 with an R and the remainder beside it.

[W]

Copy Ex. 7 to 31 and write the answers as in the box.

7. $3\overline{)2}$

8. $9\overline{)5}$

9. $9\overline{)7}$

10. $6\overline{)5}$

11. $8\overline{)5}$

12. $7\overline{)5}$

13. $4\overline{)3}$

14. $8\overline{)3}$

15. $7\overline{)4}$

16. $2\overline{)1}$

17. $6\overline{)2}$

18. $9\overline{)2}$

19. $5\overline{)4}$

20. $9\overline{)8}$

21. $7\overline{)2}$

22. $3\overline{)1}$

23. $9\overline{)4}$

24. $8\overline{)7}$

25. $5\overline{)3}$

26. $4\overline{)1}$

27. $8\overline{)6}$

28. $5\overline{)2}$

29. $6\overline{)4}$

30. $7\overline{)3}$

31. $7\overline{)6}$

When you cannot divide, write 0 in the quotient and show the remainder with R.

0 as the Last Figure in the Quotient

D. of 2-place numbers [O]

1. The skating teacher divided 60 skaters into teams of 6 skaters each. How many teams did he make?

A

$$\begin{array}{r|l} \text{Tens} & \text{Ones} \\ 1 & 0 \\ 6\overline{)6} & 0 \\ \underline{6} & \underline{} \\ & 0 \end{array}$$

B

$$\begin{array}{r} 10,\ \text{R3} \\ 6\overline{)63} \\ \underline{6} \\ 3 \end{array}$$

Explain box **A.** In one's place there is nothing to be divided. Write "0" in one's place in the quotient.

The 60 skaters made just 10 teams of 6 skaters each.

2. If there had been 63 skaters, how many teams of 6 skaters each could there have been?

Study the work in box **B.** Why is 0 written in one's place in the quotient? Why is R3 written beside the quotient? What does R3 mean? Does the 3 mean "3 skaters" or "3 groups"?

The 63 skaters would have made 10 teams, with 3 skaters left over.

When you cannot make the last division, write 0 as a quotient figure and show the remainder.

[W]

Copy Ex. 3 to 6 and finish the divisions.

3. $\begin{array}{r} 190, \text{ R2} \\ 4\overline{)762} \end{array}$

4. $\begin{array}{r} \$1.40 \\ 6\overline{)\$8.40} \end{array}$

5. $\begin{array}{r} 60, \text{ R5} \\ 8\overline{)485} \end{array}$

6. $\begin{array}{r} \$0.60 \\ 3\overline{)\$1.80} \end{array}$

Copy and work. Check your answers.

7. $6\overline{)305}$
8. $7\overline{)\$8.40}$
9. $8\overline{)324}$
10. $5\overline{)403}$
11. $2\overline{)\$3.40}$
12. $7\overline{)354}$
13. $3\overline{)512}$
14. $5\overline{)654}$
15. $3\overline{)\$9.60}$
16. $7\overline{)\$4.20}$
17. $4\overline{)323}$
18. $9\overline{)\$3.60}$
19. $6\overline{)243}$
20. $5\overline{)\$9.50}$
21. $3\overline{)930}$
22. $4\overline{)523}$
23. $6\overline{)\$7.20}$
24. $3\overline{)452}$
25. $7\overline{)\$2.80}$
26. $8\overline{)244}$
27. $6\overline{)\$7.80}$

Extra Practice. Work Sets 37 and 38.

Test Yourself 10

[W]

Copy and work. Do not check your answers.

1. 1,406 − 857
2. 6 × \$1.59
3. 311 − 266
4. 400 − 361
5. \$8.45 ÷ 7
6. 687 + 746
7. 7 × 346
8. 540 ÷ 9
9. 746 × 6
10. 354 ÷ 5
11. 8 × \$6.25
12. 101 ÷ 6
13. 674 minus 398
14. \$2.10 + \$9.43
15. 4,788 + 3,257
16. \$52.08 plus \$3.75
17. 9's in \$3.07
18. 8 times \$5.43
19. 846 + 2,697 + 3,575 + 97
20. 85 + 98 + 70 + 68 + 57

Linear Measures

[W]

When we want to know how long or how tall or how wide things are, we use linear measures.

Some units of linear measure are the inch, the foot, and the yard. For long distances, such as those between towns, the unit of linear measure is the mile.

After each example number on your paper, write the unit to use for measuring the distance named.

1. Width of a room
2. Length of a boy's jump
3. Width of a rose
4. Width of a large city
5. Length of a chicken
6. Length of a book
7. Width of a house
8. Length of a river
9. Length of a football field
10. Width of a ribbon
11. Length of a piece of cloth for a dress
12. Length of a child's wagon
13. Length of string made into a big ball
14. Length of Lake Ontario
15. Distance across a room

This is a table of linear measure. Use a ruler and a yardstick to check it. Then write the work for Ex. 16 to 23.

12 inches (in.) = 1 foot (ft.)
3 ft. = 1 yard (yd.) **1 yd. = 36 in.**

16. How many feet in 5 yd.? HELPER: 1 yd. = 3 ft., so 5 yd. = 5 × 3 ft., or _?_ ft.

17. How many feet in 9 yd.? in 2 yd.? in 4 yd.?

18. How many inches in 3 ft.? in 4 ft.? in 6 ft.?

19. How many inches in 2 yd.? in 5 yd.? in 4 yd.?

20. How many yards in 6 ft.? HELPER: 3 ft. = 1 yd., so in 6 ft. there are as many yards as there are 3's in 6.

21. How many yards in 9 ft.? in 15 ft.?

22. How many yards in 17 ft.? How many feet will be left over? 17 ft. = _?_ yd. and _?_ ft.

23. Change to feet and inches: **a.** 19 in. **b.** 22 in.

Test Yourself 11

[W]

Write just the quotients on folded paper.

	a	b	c	d	e	f	g
1.	5)19	6)12	5)45	9)34	1)6	6)37	8)40
2.	4)34	7)35	6)38	3)21	4)24	4)35	6)48
3.	6)42	8)37	2)16	9)28	5)35	6)4	4)28
4.	7)21	9)54	9)21	3)24	7)43	3)27	4)23
5.	5)40	7)16	8)52	2)12	6)56	7)28	9)45
6.	6)19	5)30	3)18	6)16	8)16	2)18	8)23

Oral Practice

Carrying in M.; estimating

	a	b	c	d
1.	$6 \times 9 + 4$	$4 \times 9 + 3$	$7 \times 6 + 6$	$5 \times 6 + 3$
2.	$8 \times 4 + 6$	$7 \times 5 + 4$	$6 \times 5 + 4$	$8 \times 3 + 5$
3.	$6 \times 7 + 5$	$3 \times 8 + 2$	$4 \times 8 + 3$	$9 \times 6 + 7$
4.	$3 \times 9 + 2$	$9 \times 4 + 7$	$6 \times 8 + 5$	$8 \times 5 + 6$
5.	$9 \times 5 + 7$	$8 \times 6 + 6$	$5 \times 9 + 4$	$3 \times 7 + 2$

Estimate these answers:

6. $13 + 59$
7. $47 - 18$
8. $81 - 68$
9. $39 + 52$
10. $58 + 22$
11. $62 - 37$
12. $79 - 41$
13. $53 + 28$

Multiplying Four-Place Numbers

[O]

A

$$\begin{array}{r} 3{,}000 \\ \times 2 \\ \hline 6{,}000 \end{array}$$

1. The empty trucks in the picture each weigh 3,000 pounds. How heavy a load would the 2 empty trucks put on the bridge?

For 3,000 *think*, "3 thousands."

2×3 thousands $=$ 6 thousands, or $2 \times 3{,}000 = 6{,}000$. Explain the work as shown in box A.

2. If the trucks were loaded, each would weigh 4,600 pounds. How heavy a load would the 2 loaded trucks put on the bridge? Study the multiplication (box **B**).

B

Thousands	Hundreds	Tens	Ones
4,	6	0	0
		×	2
9,	2	0	0

Multiply ones and tens: We multiply ones and tens as always.

Multiply the hundreds: 2 × 6 = 12. But 12 hundreds equal 1 thousand and 2 hundreds. Write "2" in hundred's column in the product and carry the 1 thousand.

Multiply thousands: $2 \times 4 = 8$ and adding the carried 1 (thousand) = 9. Write "9" in thousand's column.

Explain the work in Ex. 3 to 6.

3. $\begin{array}{r} 834 \\ \times 2 \\ \hline 1{,}668 \end{array}$ 4. $\begin{array}{r} 2{,}653 \\ \times 3 \\ \hline 7{,}959 \end{array}$ 5. $\begin{array}{r} 1{,}034 \\ \times 7 \\ \hline 7{,}238 \end{array}$ 6. $\begin{array}{r} \$24.38 \\ \times 4 \\ \hline \$97.52 \end{array}$

Multiply thousands as you multiply ones.
When the product in hundred's column means 10 or more, you carry.

[W]

Copy and work. Then multiply each example again.

7. $\begin{array}{r} 202 \\ \times 8 \\ \hline \end{array}$ 8. $\begin{array}{r} 587 \\ \times 3 \\ \hline \end{array}$ 9. $\begin{array}{r} 976 \\ \times 2 \\ \hline \end{array}$ 10. $\begin{array}{r} \$6.87 \\ \times 4 \\ \hline \end{array}$

11. $\begin{array}{r} 1{,}432 \\ \times 5 \\ \hline \end{array}$ 12. $\begin{array}{r} 2{,}259 \\ \times 4 \\ \hline \end{array}$ 13. $\begin{array}{r} 1{,}403 \\ \times 6 \\ \hline \end{array}$ 14. $\begin{array}{r} \$2.34 \\ \times 9 \\ \hline \end{array}$

15. $\begin{array}{r} 4{,}534 \\ \times 2 \\ \hline \end{array}$ 16. $\begin{array}{r} 2{,}906 \\ \times 3 \\ \hline \end{array}$ 17. $\begin{array}{r} 1{,}234 \\ \times 7 \\ \hline \end{array}$ 18. $\begin{array}{r} \$11.43 \\ \times 8 \\ \hline \end{array}$

Dividing Four-Place Numbers

3-place quotients [O]

1. Explain the work in box A.

A

$$\begin{array}{rl} \$1.81 & \leftarrow \text{quotient} \\ 5\overline{)\$9.05} & \leftarrow \text{dividend} \\ \underline{5} & \\ 4\,0 & \\ \underline{4\,0} & \\ 5 & \\ \underline{5} & \\ \text{divisor} & \end{array}$$

B

$$\begin{array}{r} 492,\ \text{R}2 \\ 3\overline{)1,478} \\ \underline{1\,2} \\ 27 \\ \underline{27} \\ 8 \\ \underline{6} \\ 2 \end{array}$$

C

$$\begin{array}{r} \$5.81 \\ 4\overline{)\$23.24} \\ \underline{20} \\ 3\,2 \\ \underline{3\,2} \\ 4 \\ \underline{4} \end{array}$$

2. How is Ex. **B** different from Ex. **A**? How many places are there in the dividend in **B**? in the quotient?

3. For Ex. **B**, if you had to divide 1,478 crayons among three classrooms, could you give as many as 1 thousand crayons to each room? No, so how many thousands will there be in the quotient?

Think of 1,478 as 14 hundreds and 7 tens and 8 ones. Then divide as in box **A**. Explain Ex. **B**.

4. Explain the work in box **C**.

[W]

Copy and divide. Check your work.

5. $2\overline{)872}$
6. $3\overline{)861}$
7. $4\overline{)764}$
8. $6\overline{)1,284}$
9. $7\overline{)374}$
10. $5\overline{)492}$
11. $2\overline{)379}$
12. $9\overline{)4,059}$
13. $4\overline{)1,570}$
14. $2\overline{)358}$
15. $7\overline{)994}$
16. $3\overline{)2,885}$
17. $5\overline{)\$4.15}$
18. $8\overline{)\$20.32}$
19. $3\overline{)\$16.37}$
20. $2\overline{)\$16.29}$

So You Won't Forget!

Review of meanings [W]

$$\begin{array}{r} 46 \\ \times 7 \\ \hline 322 \end{array} \qquad \begin{array}{r} 57 \\ +44 \\ \hline 101 \end{array}$$

$$\begin{array}{r} 23 \\ 4\overline{)92} \end{array}$$

Copy from the box

1. a dividend. **3.** a divisor.

2. a multiplier. **4.** a multiplicand.

Check these by subtracting:

5. $72 \div 8 = 7$ **6.** $63 \div 7 = 8$

Check these by adding:

7. $7 \times 9 = 72$ **8.** $8 \times 8 = 63$ **9.** $7 \times 8 = 81$

Write the multiplication fact that can help you find

10. $\frac{1}{7}$ of 35. **11.** $\frac{1}{6}$ of 48. **12.** $\frac{1}{8}$ of 32.

Write the whole story in M. and D. about

13. 7, 6, and 42. **14.** 6, 6, and 36.

15. Write the fraction in which the denominator is 6 and the numerator is 5.

16. Write the names of two units of linear measure.

Written Practice

Copy and work. Check all answers.

1. Multiply by 7: **a.** 64 **b.** 1,153 **c.** \$3.62

2. Divide by 5: **a.** 243 **b.** 1,553 **c.** 3,133

3. Add 2,098: **a.** 968 **b.** 4,796 **c.** 5,689

4. Divide by 6: **a.** 250 **b.** 353 **c.** 4,504

5. Subtract 967: **a.** 1,810 **b.** 6,706 **c.** 3,487

6. Multiply by 9: **a.** 115 **b.** 236 **c.** \$4.65

Can You Solve Problems?

Problem Test 4

Write your work for problems 1 to 9. Work carefully.

1. Mr. Brooks was born in 1908. Mrs. Brooks was born 9 years later, or in what year?

2. Tom Brooks is 12 years old. Tom is 4 times as old as his sister, Jane. How old is Jane?

3. Tom's Aunt Ruth is 4 times as old as he is. Tom is 12 years old. How old is his Aunt Ruth?

4. Tom has been in school 6 years. Each school year lasts 180 days. So in all, how many days has Tom been in school?

5. The Brooks family car goes 225 miles before the gasoline tank needs filling. On their trip they used 5 tankfuls of gasoline. How many miles long was the trip?

6. Meals for the family for three days cost $10.95, $11.50, and $12.35. How much did the Brooks family spend on meals for three days?

7. The price for staying a night in one town was $4.40 for each grownup. For children it was just half as much. How much did it cost for a child?

8. Rooms for the family cost $9.50 in one cabin and $8.75 in another. How much less did rooms at the second cabin cost than in the first?

9. One good day the Brooks family drove 465 miles. Mrs. Brooks drove $\frac{1}{3}$ of the distance. How many miles did Mrs. Brooks drive?

Do You Make Mistakes?

Diagnostic Test 4

Copy and work.

	a	b	c	d	Study Pages	Practice Sets
1.	6 × 9	8 × 6	6 × 7	5 × 6	152–153, 155–157	34
2.	31 ÷ 6	45 ÷ 6	57 ÷ 6	50 ÷ 6	158–159, 162, 164	35
3.	3 ÷ 5	4 ÷ 7	6 ÷ 9	5 ÷ 8	169	37
4.	Check your work for these:				170, 176	36, 38
	$4\overline{)160}$	$7\overline{)\$3.55}$	$6\overline{)809}$	$3\overline{)1{,}383}$		
5.	Check your work for these:				174–175	
	2,314 ×2	2,124 ×3	2,253 ×3	1,612 ×4		

Written Practice

Check each answer after you find it.

1 to 6. Multiply each number below by 6.

216 450 162 875 398 698

7 to 12. Multiply each number above by 5.

13 to 18. Divide each number below by 7.

4,375 2,201 2,893 3,824 1,778 985

19 to 24. Divide each number above by 6.

25 to 30. Multiply each number below by 8.

610 542 261 430 653 1,054

Do You Understand?

Test of Information and Meaning 4

1. What do we call the number to be divided?

2. The fraction fact $\frac{1}{4}$ of $12 = 3$ goes with what division fact?

3. In one half of a foot there are _?_ inches.

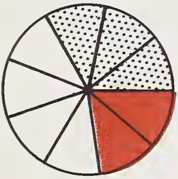
4. What name do we give to the answer of any division example?

5. In the fraction $\frac{3}{7}$, the 3 is the _?_.

6. How many inches are there in a yard?

7. In a fraction, what do we call the number that tells how many equal parts there are in the fraction?

8. In a multiplication example the number that is to be multiplied is called the _?_.



Write the fraction that tells what part of the circle at the left has been

9. colored. **10.** dotted.

Write an example in which

11. 4 is the divisor. **12.** 6 is the multiplier.

13. Write the two division facts that go with the multiplication fact, $7 \times 9 = 63$.

14. Copy and finish the work in the box.

$$\begin{array}{r} 330 \\ 4\overline{)1,322} \end{array}$$

15. Write the names of two months that have 31 days.

Written Practice

Copy and work. Check all your answers.

1. $\begin{array}{r}\$2.46\\ \times 7\\ \hline\end{array}$ 2. $\begin{array}{r}\$5.35\\ -3.83\\ \hline\end{array}$ 3. $\begin{array}{r}\$3.36\\ \times 9\\ \hline\end{array}$ 4. $\begin{array}{r}\$8.32\\ -8.07\\ \hline\end{array}$

5. $\begin{array}{r}3{,}147\\ +906\\ \hline\end{array}$ 6. $\begin{array}{r}8{,}100\\ -7{,}095\\ \hline\end{array}$ 7. $\begin{array}{r}\$43.75\\ 4.56\\ 5.17\\ +9.84\\ \hline\end{array}$ 8. $\begin{array}{r}\$34.86\\ 5.79\\ 9.53\\ +2.95\\ \hline\end{array}$

9. $8\overline{)1{,}248}$ 10. $6\overline{)4{,}542}$

11. $\begin{array}{r}\$4.87\\ \times 6\\ \hline\end{array}$ 12. $\begin{array}{r}\$5.62\\ \times 8\\ \hline\end{array}$ 13. $\begin{array}{r}877\\ 743\\ 58\\ +634\\ \hline\end{array}$ 14. $\begin{array}{r}43\\ 682\\ 1{,}078\\ +4{,}867\\ \hline\end{array}$

15. $7\overline{)214}$ 16. $8\overline{)240}$

How Well Can You Figure?

Computation Test 4

Copy and work. Check all your answers.

1. $\begin{array}{r}\$3.87\\ \times 6\\ \hline\end{array}$ 2. $\begin{array}{r}401\\ -318\\ \hline\end{array}$ 3. $\begin{array}{r}\$9.70\\ \times 5\\ \hline\end{array}$ 4. $\begin{array}{r}\$7.64\\ +2.39\\ \hline\end{array}$

5. $\begin{array}{r}\$5.26\\ \times 9\\ \hline\end{array}$ 6. $\begin{array}{r}\$7.00\\ -5.58\\ \hline\end{array}$ 7. $\begin{array}{r}\$2.53\\ 4.89\\ 4.70\\ +8.65\\ \hline\end{array}$ 8. $\begin{array}{r}5{,}007\\ 86\\ 979\\ +2{,}063\\ \hline\end{array}$

9. $4\overline{)362}$ 10. $6\overline{)4{,}083}$

11. $\begin{array}{r}\$6.40\\ \times 8\\ \hline\end{array}$ 12. $\begin{array}{r}\$8.79\\ \times 4\\ \hline\end{array}$ 13. $\begin{array}{r}1{,}356\\ \times 7\\ \hline\end{array}$ 14. $\begin{array}{r}\$5.96\\ \times 6\\ \hline\end{array}$

15. $3\overline{)812}$ 16. $6\overline{)1{,}722}$ 17. $7\overline{)4{,}483}$ 18. $9\overline{)3{,}060}$

5

Watching the Parade

Whole stories in M. and D. [O]

Don watched the parade from an upstairs window. The picture shows how the band looked to Don.

1. How many band men are in a row?

In Ex. 2 to 10, say the multiplication facts for 7's. Count by 7's to get answers you do not know.

2. One 7 = ?

3. Two 7's = ?

4. Three 7's = ?

5. Four 7's = ?

6. Five 7's = ?

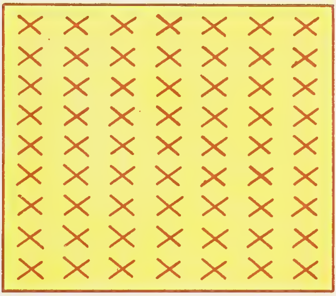
7. Six 7's = ?

8. Seven 7's = ?

9. Eight 7's = ?

10. Nine 7's = ?

That evening, Don showed his mother how the band lined up. He made an X for each man, as in the box.



11. With a sheet of paper, cover all but the two top rows of X's. Say the whole story in M. and D. for 2, 7, and 14.

$2 \times 7 = ?$ $\qquad 14 \div 7 = ?$

$7 \times 2 = ?$ $\qquad 14 \div 2 = ?$

12. Move the paper so that 3 rows show. Say the whole story for 3, 7, and 21.

13. Leave 4 rows uncovered and say the whole story. Do the same for 5 rows; for 6 rows.

14. When 7 rows are uncovered, the whole story has only 2 parts. Why? Tell the 2 parts.

15. With 8 rows uncovered, say the whole story.

16. Uncover all 9 rows. Say the whole story.

Checking Products

Finding M. facts for 7's and for 7 [W]

Some products in Ex. 1 to 8 are wrong. On your paper, check each product and write the correct answer.

1. Seven campers can sleep in a tent. Six tents of this kind can take care of 42 campers.

Is 42 the correct product? If you do not know, count by 7's or add 7's. Six 7's = ?

2. Ann bought 5¢ candy bars for herself and for six other girls. She paid 40¢.

3. Joan's mother said that a month would have to be 56 days long if it lasted 8 weeks.

4. Sue thinks that 7 weeks is equal to 35 days.

5. Helen says that if she saves 6¢ a week for 7 weeks she can buy a 50¢ book.

6. The stairs in the office had 7 steps. Peggy climbed them 5 times. She climbed 36 steps.

7. Ann paid 63¢ for 9 post cards selling for 7¢ each.

8. To get 7 pieces of string, each 4 inches long, Sue cut them from one string 27 inches long.

The Multiplication Tables for 7's and for 7

Making M. tables [W]

Close your book and make tables of M. facts for 7's and for 7 like those you made for 6's and for 6 on page 155.

You will find that the last three facts in each table are the only ones you have not had in other M. tables. Find products for these by adding or counting 7's or 8's or 9's.

Practice on Products

M. Facts [W]

On folded paper write just the products for rows 1 to 8. If you have to look at the tables for a product, circle that product on your paper.

	a	b	c	d	e
1.	9 × 5	4 × 7	6 × 8	9 × 2	4 × 6
2.	6 × 7	3 × 9	9 × 7	8 × 4	7 × 8
3.	8 × 5	7 × 3	6 × 5	3 × 8	6 × 9
4.	3 × 6	5 × 9	8 × 3	7 × 2	5 × 7
5.	9 × 6	7 × 7	5 × 6	9 × 4	7 × 4
6.	8 × 7	3 × 7	4 × 9	7 × 6	8 × 2
7.	6 × 3	8 × 6	2 × 7	5 × 4	6 × 4
8.	7 × 5	9 × 3	4 × 8	7 × 9	5 × 8

Make study cards for facts you find hard.

Multiplication Facts for 7's

7	7	7	7	7	7	7	7	7
×1	×2	×3	×4	×5	×6	×7	×8	×9
7	14	21	28	35	42	49	56	63

Multiplication Facts for 7

1	2	3	4	5	6	7	8	9
×7	×7	×7	×7	×7	×7	×7	×7	×7
7	14	21	28	35	42	49	56	63

➤ **Extra Practice.** Work Set 41.

Test Yourself 12

[W]

On folded paper write the products.

	a	b	c	d	e	f	g	h	i
1.	2 ×9	5 ×7	3 ×8	9 ×5	7 ×6	4 ×4	5 ×6	3 ×7	5 ×8
2.	8 ×4	6 ×5	3 ×9	6 ×6	9 ×7	8 ×5	7 ×4	8 ×6	5 ×9
3.	4 ×7	9 ×3	7 ×5	4 ×8	5 ×5	6 ×9	5 ×4	7 ×8	8 ×2
4.	4 ×6	7 ×9	6 ×4	2 ×7	6 ×8	6 ×3	9 ×4	8 ×3	6 ×7

Written Practice in Multiplication

Carrying in M.

Write answers on folded paper.

	a	b	c	d
1.	6 × 5 + 3	4 × 7 + 3	7 × 6 + 6	6 × 8 + 4
2.	7 × 9 + 4	5 × 6 + 4	4 × 8 + 3	7 × 2 + 5
3.	3 × 8 + 2	8 × 4 + 5	9 × 7 + 7	9 × 3 + 6
4.	9 × 5 + 7	6 × 9 + 5	8 × 3 + 6	7 × 5 + 3
5.	7 × 7 + 5	7 × 8 + 5	9 × 6 + 6	9 × 4 + 6
6.	4 × 9 + 3	9 × 2 + 6	5 × 7 + 4	8 × 7 + 6

Copy and multiply.

7.	7 × 45	6 × 78	8 × 67	5 × 97
8.	7 × 379	4 × 576	9 × 764	3 × 247

Making Division Problems

When divisor or quotient is 7 [W]

Write questions to make division problems.

1. 21 large snowballs for 7 snow people.
2. 42 plums shared equally by 7 children.
3. 7 candy bars of the same kind cost 49¢.
4. 63 hard candies in bags, 9 pieces to a bag.
5. 35 shoe boxes, 5 boxes on each table.
6. 56 men in a band, marching in rows of 8.
7. 28 flags in the parade in equal groups of 7.
8. 28 canaries, 4 canaries in each cage.
9. 42 bulbs, $\frac{1}{6}$ of them planted to a pot.
10. 35 onions in 7 equal bunches.
11. 63 bars of soap, $\frac{1}{7}$ of them in each package.

For each problem write in two different ways the example and its quotient. Find quotients you do not know by using multiplication facts or by subtracting.

For Ex. 1, you can write "$21 \div 7 = 3$ and $7\overline{)21}^{\,3}$"

Using Related Facts

Measurement D. [O]

1. To find how many groups of 7 in 42, Ralph wrote "42 ÷ 7 = 8." To test his quotient, he thought, "How many 7's make 42?" He wrote, "6 × 7 = 42."

Using 6 × 7 = 42, Ralph found that 42 ÷ 7 = ?

For each of Ex. 2 to 10, tell a related multiplication fact to use in testing the quotient. When a quotient is wrong, give the correct division fact.

2. 35 ÷ 5 = 8
3. 63 ÷ 7 = 7
4. 56 ÷ 7 = 8
5. 49 ÷ 7 = 6
6. 42 ÷ 6 = 7
7. 63 ÷ 9 = 7
8. 35 ÷ 7 = 5
9. 56 ÷ 8 = 8
10. 42 ÷ 7 = 9

Fractional-part D. [W]

11. To divide 56 into 8 equal groups, Joe wrote "$\frac{1}{8}$ of 56 = 7." He knew that the answer for $\frac{1}{8}$ of 56 is the size of each of the equal groups, so he used a M. fact in testing his answer. He *thought*, "8 times what equals 56?" and wrote "8 × 7 = 56."

Using 8 × 7 = 56, Joe found that $\frac{1}{8}$ of 56 = ?

For each of Ex. 12 to 20, tell a related multiplication fact to use in testing the answer. When an answer is wrong, give the correct fraction fact.

12. $\frac{1}{6}$ of 42 = 6
13. $\frac{1}{7}$ of 49 = 9
14. $\frac{1}{8}$ of 56 = 7
15. $\frac{1}{9}$ of 63 = 7
16. $\frac{1}{7}$ of 56 = 8
17. $\frac{1}{5}$ of 35 = 6
18. $\frac{1}{7}$ of 42 = 8
19. $\frac{1}{7}$ of 63 = 9
20. $\frac{1}{7}$ of 35 = 6

Extra Practice. Work Set 39.

Making New Division Tables

Divisor or quotient 7 [W]

1. Use the left side of each box to help you make tables of D. facts like those you made on page 128.

D. Facts Divisor 7	Fraction Facts
7 ÷ 7 = 1	$\frac{1}{7}$ of 7 = 1
14 ÷ 7 = 2	$\frac{1}{7}$ of 14 = 2
and so on to	and so on to
49 ÷ 7 = ?	$\frac{1}{7}$ of 49 = ?
56 ÷ 7 = ?	$\frac{1}{7}$ of 56 = ?
63 ÷ 7 = ?	$\frac{1}{7}$ of 63 = ?

D. Facts Quotient 7	Fraction Facts
7 ÷ 1 = 7	
14 ÷ 2 = 7	$\frac{1}{2}$ of 14 = 7
and so on to	and so on to
49 ÷ 7 = ?	$\frac{1}{7}$ of 49 = ?
56 ÷ 8 = ?	$\frac{1}{8}$ of 56 = ?
63 ÷ 9 = ?	$\frac{1}{9}$ of 63 = ?

2. As you did on page 129, make tables of fraction facts to go with the D. facts. The right side of the boxes shows how to start with $\frac{1}{7}$ of 7 = 1 and $\frac{1}{2}$ of 14 = 7.

[O]

Say the quotients by rows and then by columns.

	a	b	c	d	e
3.	24 ÷ 6	18 ÷ 3	35 ÷ 7	45 ÷ 9	49 ÷ 7
4.	35 ÷ 5	54 ÷ 9	36 ÷ 4	14 ÷ 7	24 ÷ 4
5.	21 ÷ 7	32 ÷ 8	63 ÷ 9	20 ÷ 4	56 ÷ 7
6.	40 ÷ 8	14 ÷ 2	48 ÷ 8	28 ÷ 7	30 ÷ 6
7.	56 ÷ 8	32 ÷ 4	27 ÷ 9	21 ÷ 3	36 ÷ 9
8.	15 ÷ 3	48 ÷ 6	63 ÷ 7	42 ÷ 6	18 ÷ 6
9.	36 ÷ 6	20 ÷ 5	28 ÷ 4	30 ÷ 5	40 ÷ 5
10.	15 ÷ 5	42 ÷ 7	24 ÷ 8	45 ÷ 5	54 ÷ 6

Make study cards for facts you find hard.

Division Facts, Divisor 7

1	2	3	4	5	6	7	8	9
7)7	7)14	7)21	7)28	7)35	7)42	7)49	7)56	7)63

Division Facts, Quotient 7

7	7	7	7	7	7	7	7	7
1)7	2)14	3)21	4)28	5)35	6)42	7)49	8)56	9)63

Do you know all the facts in the tables above? How can you tell which facts have not been in division tables you have had? For practice, use rows 3 to 10, page 189.

Uneven Division

Using table numbers when divisor or quotient is 7 **[O]**

1. Give the table numbers from the tables above.

2. What are the three new table numbers you have just learned?

3. Dividing by 7. What table number do you use for dividing 43, 44, 45, 46, 47, 48? for dividing 57, 58, 59, 60, 61, 62?

4. In dividing by 7, what table number do you use for 53? 67? 60? 51? 65? 54? 59?

For dividing by 8 and 9, you now know the table numbers whose quotient is 7.

5. Dividing by 8. The table number for dividing 57, 58, 59, 60, 61, 62, 63 is _?_.

6. Dividing by 9. The table number for dividing 64, 65, 66, 67, 68, 69, 70, 71 is _?_.

[W]

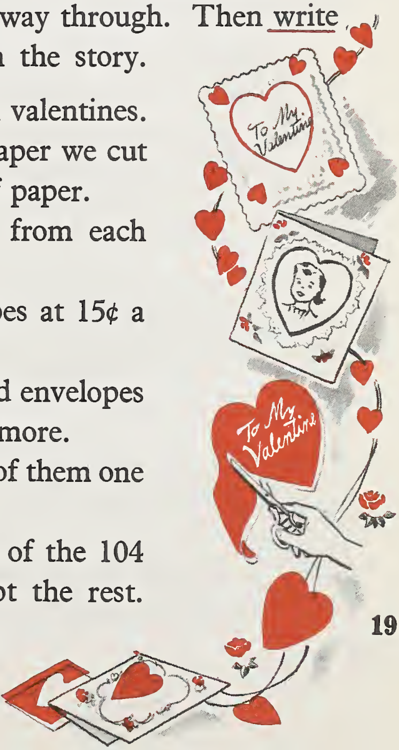
Write quotients with their remainders on your paper.

	a	b	c	d	e	f
7.	$9\overline{)65}$	$8\overline{)37}$	$9\overline{)66}$	$6\overline{)51}$	$7\overline{)60}$	$7\overline{)36}$
8.	$7\overline{)67}$	$4\overline{)36}$	$5\overline{)39}$	$7\overline{)53}$	$9\overline{)56}$	$8\overline{)56}$
9.	$6\overline{)50}$	$7\overline{)58}$	$8\overline{)29}$	$8\overline{)63}$	$2\overline{)17}$	$6\overline{)44}$
10.	$7\overline{)44}$	$9\overline{)38}$	$7\overline{)64}$	$4\overline{)34}$	$8\overline{)43}$	$7\overline{)65}$
11.	$8\overline{)50}$	$8\overline{)60}$	$6\overline{)33}$	$9\overline{)64}$	$7\overline{)38}$	$7\overline{)50}$
12.	$3\overline{)282}$	$6\overline{)450}$	$7\overline{)308}$	$2\overline{)190}$	$4\overline{)316}$	$9\overline{)67}$
13.	$7\overline{)513}$	$4\overline{)272}$	$3\overline{)250}$	$8\overline{)365}$	$8\overline{)573}$	$7\overline{)59}$

Making Valentines

Making problems [W]

First read this story all the way through. Then write 6 problems, using numbers in the story.



This year we made our own valentines. From one large sheet of red paper we cut 14 hearts. We used 8 sheets of paper.

We cut out 112 arrows, 8 from each sheet of gold paper.

We bought 9 dozen envelopes at 15¢ a dozen.

Things for the valentines and envelopes cost $3.15. Stamps cost $2.94 more.

We made 104 valentines, 60 of them one day and the rest the next day.

The children took home 96 of the 104 valentines and the teacher kept the rest.

Finding Dividends

Multiplying to find n [O]

1. Joe put 5 white mice in each of 3 cages. How many mice was he dividing among the cages?

We can write the example with **n**, "$n \div 5 = 3$."

You know the divisor, 5, and the quotient, 3. You are to find the dividend, **n**. You have done examples like this in checking division.

2. Study box **A**. Then finish this: The product of the quotient and the _?_ equals the dividend.

3. Explain box **B**.

4. Box **C**. The divisor is _?_, and the quotient is _?_. The dividend, **n**, is _?_. Tell why.

5. Box **D**. How do you find the value of **n**? Are you finding the dividend?

A

$n \div 5 = 3$, so $n = 15$, because $3 \times 5 = 15$.

B

$n \div 6 = 8$, so $n = 48$.

C

$n \div 4 = 16$; $4 \times 16 =$ _?_, so $n = ?$

D

$n \div 6 = 13$, so $n = ?$

To find the dividend of a division example, multiply the quotient and the divisor.

[W]

Find dividends as you did on page 192.

	a	b	c
6.	**n** ÷ 4 = 49	**n** ÷ 6 = 52	**n** ÷ 3 = 960
7.	**n** ÷ 3 = 78	**n** ÷ 7 = 42	**n** ÷ 9 = 352
8.	**n** ÷ 2 = 67	**n** ÷ 9 = 16	**n** ÷ 7 = 614
9.	**n** ÷ 6 = 85	**n** ÷ 4 = 37	**n** ÷ 2 = 589
10.	**n** ÷ 9 = 46	**n** ÷ 8 = 52	**n** ÷ 5 = 674
11.	**n** ÷ 5 = 89	**n** ÷ 3 = 41	**n** ÷ 8 = 216
12.	**n** ÷ 7 = 35	**n** ÷ 4 = 29	**n** ÷ 6 = 790
13.	**n** ÷ 8 = 63	**n** ÷ 2 = 87	**n** ÷ 7 = 265

So You Won't Forget!

[W]

Write your estimated answer for

1. 63 − 49.
2. 32 + 58.
3. 18 + 71.
4. 80 − 28.
5. 84 minus 21.
6. 29 plus 59.

Write an example in which

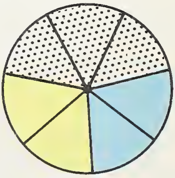
7. 37 is the multiplicand and 6 is the multiplier.
8. 4 is the divisor and 247 is the dividend.

Write these numbers as dates:

9. Sixteen two
10. Twelve twenty
11. Seventeen sixty-nine
12. Fourteen thirty-seven

Find the value of **n.**

13. n + 14 = 87
14. n × 5 = 625



Which fraction tells what part of the circle is

15. blue?
16. dotted?
17. yellow?

Making Division Easier

Practice on S. [O]

Don was explaining his work at the board.

Pointing to the subtraction, 38 − 36, he said,

6 from 8 is 2, and I write "2."

3 from 3 is 0, so I don't write anything.

Ruth said that she had an easier and quicker way and didn't think so many words. She said,

Look at 38 − 36, *think* "2" at once, and write it.

1. Why is Ruth's way easier? Explain it.

2. What would Don think in his next subtraction, 28 − 24? What would Ruth think?

3. In Mary's example below, tell how to subtract using Don's way, then Ruth's way. Which is easier?

Mary

$$\begin{array}{r} 56, R2 \\ 5\overline{)282} \\ \underline{25} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Explain both ways in Ex. 4 to 9.

4. $\begin{array}{r} 18 \\ \underline{-16} \end{array}$

5. $\begin{array}{r} 29 \\ \underline{-24} \end{array}$

6. $\begin{array}{r} 58 \\ \underline{-56} \end{array}$

7. $\begin{array}{r} 63 \\ \underline{-63} \end{array}$

8. $\begin{array}{r} 37 \\ \underline{-35} \end{array}$

9. $\begin{array}{r} 46 \\ \underline{-42} \end{array}$

In many division examples you have subtraction like Mary's. Why should you subtract the new way?

[O]

Think and say the subtraction the new short way.

	a	b	c	d	e	f	g
10.	$\begin{array}{r}18\\-15\\\hline\end{array}$	$\begin{array}{r}49\\-45\\\hline\end{array}$	$\begin{array}{r}38\\-35\\\hline\end{array}$	$\begin{array}{r}57\\-54\\\hline\end{array}$	$\begin{array}{r}68\\-63\\\hline\end{array}$	$\begin{array}{r}58\\-53\\\hline\end{array}$	$\begin{array}{r}24\\-20\\\hline\end{array}$
11.	$\begin{array}{r}49\\-49\\\hline\end{array}$	$\begin{array}{r}37\\-32\\\hline\end{array}$	$\begin{array}{r}25\\-24\\\hline\end{array}$	$\begin{array}{r}27\\-21\\\hline\end{array}$	$\begin{array}{r}39\\-32\\\hline\end{array}$	$\begin{array}{r}25\\-21\\\hline\end{array}$	$\begin{array}{r}17\\-12\\\hline\end{array}$
12.	$\begin{array}{r}34\\-30\\\hline\end{array}$	$\begin{array}{r}59\\-54\\\hline\end{array}$	$\begin{array}{r}16\\-12\\\hline\end{array}$	$\begin{array}{r}59\\-56\\\hline\end{array}$	$\begin{array}{r}18\\-18\\\hline\end{array}$	$\begin{array}{r}29\\-27\\\hline\end{array}$	$\begin{array}{r}33\\-30\\\hline\end{array}$
13.	$\begin{array}{r}36\\-36\\\hline\end{array}$	$\begin{array}{r}49\\-48\\\hline\end{array}$	$\begin{array}{r}67\\-63\\\hline\end{array}$	$\begin{array}{r}38\\-32\\\hline\end{array}$	$\begin{array}{r}39\\-35\\\hline\end{array}$	$\begin{array}{r}48\\-45\\\hline\end{array}$	$\begin{array}{r}27\\-24\\\hline\end{array}$

Test Yourself 13

[W]

Write quotients with their remainders on folded paper.

	a	b	c	d	e	f	g
1.	$5\overline{)40}$	$7\overline{)21}$	$3\overline{)28}$	$8\overline{)43}$	$5\overline{)39}$	$6\overline{)42}$	$9\overline{)45}$
2.	$6\overline{)54}$	$4\overline{)32}$	$7\overline{)49}$	$9\overline{)20}$	$8\overline{)56}$	$7\overline{)59}$	$5\overline{)34}$
3.	$4\overline{)39}$	$7\overline{)30}$	$8\overline{)60}$	$6\overline{)48}$	$7\overline{)18}$	$3\overline{)21}$	$7\overline{)38}$
4.	$3\overline{)25}$	$6\overline{)30}$	$7\overline{)47}$	$9\overline{)38}$	$7\overline{)63}$	$6\overline{)45}$	$8\overline{)24}$
5.	$9\overline{)63}$	$4\overline{)20}$	$7\overline{)64}$	$8\overline{)51}$	$4\overline{)30}$	$5\overline{)38}$	$7\overline{)70}$
6.	$5\overline{)25}$	$7\overline{)56}$	$5\overline{)45}$	$6\overline{)38}$	$4\overline{)24}$	$9\overline{)30}$	$3\overline{)20}$
7.	$8\overline{)32}$	$9\overline{)65}$	$6\overline{)27}$	$9\overline{)54}$	$8\overline{)17}$	$7\overline{)53}$	$7\overline{)35}$

0 in the Middle of the Quotient

[O]

1. Pilot Anderson's plane carried 832 passengers one month. Of these, $\frac{1}{4}$ were women. How many women passengers were there?

Study the work in boxes **A** to **C**.

A
2
4)832
8

B
20
4)832
8
3

C
208
4)832
8
32
32

Box **A.** Divide hundreds: 8 ÷ 4 = 2.

After writing "2" in the quotient as hundreds and multiplying and subtracting, do you bring down 3 tens or 3 ones?

Box **B.** Divide tens: For 3 ÷ 4 = 0, you write "0" as quotient figure in ten's place. Then what do you bring down?

Box **C.** Divide the ones: 32 ÷ 4 = ? What do you write in one's place in the quotient? Is there any remainder?

D
$1.??
5)$5.40
5
??

2. A family of 5 each ordered the same kind of lunch at the airport. The total cost was $5.40. What was the cost of each lunch? Explain how to finish the work in box **D.**

[W]

Copy and work. Check all answers.

3. $4\overline{)424}$
4. $6\overline{)644}$
5. $3\overline{)212}$
6. $7\overline{)745}$
7. $5\overline{)150}$
8. $8\overline{)844}$
9. $2\overline{)417}$
10. $9\overline{)276}$
11. $3\overline{)324}$
12. $5\overline{)527}$
13. $4\overline{)163}$
14. $2\overline{)421}$
15. $7\overline{)763}$
16. $6\overline{)629}$
17. $7\overline{)715}$
18. $9\overline{)915}$
19. $2\overline{)\$9.08}$
20. $7\overline{)\$45.50}$
21. $8\overline{)\$34.48}$
22. $3\overline{)\$19.38}$
23. $9\overline{)\$42.48}$
24. $4\overline{)\$30.03}$
25. $5\overline{)\$35.45}$
26. $6\overline{)\$48.12}$

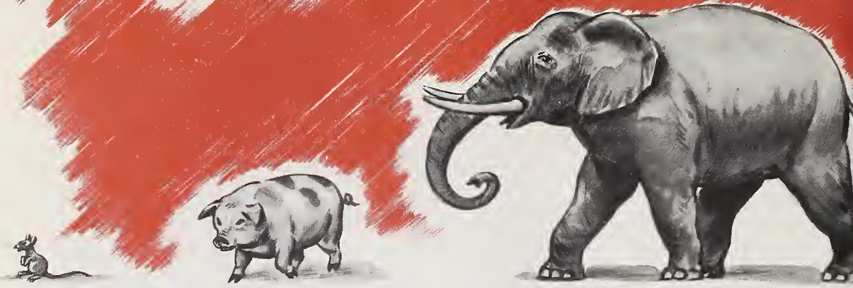
Extra Practice. Work Set 40.

What Is n?

[O]

Find the value of **n** in each example below.

	a	b	c
1.	$42 + n = 49$	$7 \times n = 49$	$n \div 4 = 9$
2.	$n \div 5 = 7$	$27 = n \times 9$	$n = 28 \div 7$
3.	$45 = n \times 9$	$n = 54 - 6$	$n + 17 = 56$
4.	$7 - n = 0$	$7 \times n = 63$	$35 \div n = 7$
5.	$56 + 7 = n$	$n + 36 = 42$	$n = 35 + 7$
6.	$7 \times 8 = n$	$n \times 6 = 48$	$63 + n = 70$
7.	$28 \div n = 4$	$48 - n = 40$	$49 \div 7 = n$
8.	$7 + n = 63$	$21 = n \times 3$	$n \div 5 = 8$
9.	$56 - n = 49$	$7 + 35 = n$	$n = 8 \times 7$
10.	$48 \div n = 8$	$7 + n = 21$	$7 + 28 = n$



How Heavy?

Ounce, pound, ton; reference measures **[O]**

As you know, we usually weigh small things by the ounce and larger things by the pound. We weigh very heavy things by the ton. A ton is 2,000 pounds.

1. Which of the animals in the picture above do we weigh by the ounce? by the pound? by the ton?

2. Find a book which weighs about 1 pound. Think of it as your pound measure.

You may need to estimate how many pounds some things weigh. Your pound measure will help you.

a. Butter is sold in pound packages. Name other things that are sold this way.

b. Name some things, like sugar, that are sold in 5-pound or 10-pound packages or cans.

c. How many pounds do you weigh?

3. How heavy is an ounce? Well, an ounce weighs so little that it is not easy to estimate in ounces.

a. Find out how many sheets of paper of the same size weigh an ounce. Think of this as your ounce measure.

b. How many ounces does this book weigh?

c. Weigh enough crayons to make 10 ounces.

4. How much is a ton? If 30 children each weigh almost 70 pounds, in all they weigh about a ton!

You should know this table of measure:

16 ounces (oz.) = 1 pound (lb.) **1 lb. = 16 oz.**
2,000 lb. = 1 ton (T.) **1 T. = 2,000 lb.**

Changing to another unit of measure [W]

On your paper, work Ex. 5 to 9.

5. How many ounces in all does a 5-pound bag of sugar weigh? Study box A.

A

16 oz. (ounces in 1 lb.)
×5
?? oz. (ounces in 5 lb.)

6. Nine children weigh 685 pounds in all, or how many pounds less than a ton?

7. A box weighs 1 pound 2 ounces, or _?_ ounces.

8. How many 2-ounce candy bars make a pound? Study box B.

B

16 oz. = 1 lb.
2's in 16 = ?

9. 5 tons of coal are how many pounds of coal in all?

Practice in Dividing and Checking

[W]

Copy and divide. Check all answers.

1. $2\overline{)521}$
2. $7\overline{)322}$
3. $3\overline{)211}$
4. $6\overline{)556}$
5. $9\overline{)545}$
6. $6\overline{)483}$
7. $5\overline{)398}$
8. $2\overline{)196}$
9. $4\overline{)283}$
10. $3\overline{)242}$
11. $9\overline{)\$37.92}$
12. $7\overline{)\$35.35}$
13. $5\overline{)\$42.52}$
14. $6\overline{)\$24.12}$
15. $4\overline{)\$28.16}$

Do You Know?

[O]

1. Decide on six children in your room who, you think, weigh the same number of pounds. Who are they?

2. Mr. Black is driving his car 40 miles an hour. Will the car go 6 times that fast?

3. Can $\frac{1}{8}$ of one thing be larger than $\frac{1}{2}$ of another thing? Explain.

4. Can you walk a mile in 7 minutes?

5. Did you ever see a ball game at 2:30 A.M.?

6. 7 is one part of 10. What is the other part?

Right or Wrong? Why?

Be careful. What is wrong in Ex. 1 to 9?

1. Dividends are always smaller than divisors.

2. The date, seventeen six, is written as 176.

3. In dividing 47 by 7, the table number is 49.

4. Mike says that his horse weighs at least 8 tons.

5. Some addition examples have 5 or 6 products.

6. Sam says that he can carry 2 stones which weigh 250 pounds each.

7. The whole story in multiplication and division about 7, 7, and 49 has four parts.

8. To find $\frac{1}{7}$ of 42, you multiply 42 by 7.

9. 1 lb. of sand weighs more than 1 lb. of feathers.

Written Practice

Copy and work.

1. $\begin{array}{r} 401 \\ \times 3 \\ \hline \end{array}$
2. $\begin{array}{r} 748 \\ -408 \\ \hline \end{array}$
3. $\begin{array}{r} 690 \\ \times 7 \\ \hline \end{array}$
4. $\begin{array}{r} \$18.27 \\ +47.69 \\ \hline \end{array}$

5. $\begin{array}{r} 500 \\ -476 \\ \hline \end{array}$
6. $\begin{array}{r} 417 \\ \times 8 \\ \hline \end{array}$
7. $\begin{array}{r} 463 \\ 295 \\ 420 \\ +83 \\ \hline \end{array}$
8. $\begin{array}{r} \$29.57 \\ 8.53 \\ +52.15 \\ \hline \end{array}$

9. $4\overline{)283}$
10. $7\overline{)405}$

11. $\begin{array}{r} 4{,}507 \\ \times 2 \\ \hline \end{array}$
12. $\begin{array}{r} 9{,}642 \\ -937 \\ \hline \end{array}$
13. $\begin{array}{r} 88 \\ 246 \\ 3{,}508 \\ +289 \\ \hline \end{array}$
14. $\begin{array}{r} \$5.47 \\ 60.29 \\ 8.34 \\ +18.63 \\ \hline \end{array}$

15. $5\overline{)3{,}540}$
16. $3\overline{)2{,}673}$

Test Yourself 14

[W]

Copy and work. Check all answers.

1. $\begin{array}{r} 710 \\ -482 \\ \hline \end{array}$
2. $\begin{array}{r} 369 \\ \times 5 \\ \hline \end{array}$
3. $\begin{array}{r} 557 \\ +7{,}394 \\ \hline \end{array}$
4. $\begin{array}{r} 314 \\ \times 7 \\ \hline \end{array}$

5. $\begin{array}{r} 847 \\ -386 \\ \hline \end{array}$
6. $\begin{array}{r} 624 \\ \times 9 \\ \hline \end{array}$
7. $\begin{array}{r} 557 \\ 360 \\ 903 \\ +718 \\ \hline \end{array}$
8. $\begin{array}{r} 325 \\ 199 \\ 4{,}677 \\ +2{,}083 \\ \hline \end{array}$

9. $8\overline{)448}$
10. $3\overline{)196}$

11. $\begin{array}{r} 1{,}123 \\ -856 \\ \hline \end{array}$
12. $\begin{array}{r} 702 \\ \times 4 \\ \hline \end{array}$
13. $\begin{array}{r} 8{,}438 \\ -2{,}786 \\ \hline \end{array}$
14. $\begin{array}{r} 608 \\ \times 2 \\ \hline \end{array}$

15. $8\overline{)162}$
16. $4\overline{)386}$
17. $5\overline{)2{,}035}$
18. $2\overline{)\$5.82}$

Joan Goes Shopping

Understanding the problem **[O]**

To solve any problem, you must understand it.

Read, but do not solve, problems 1 to 7, below. Tell what each of these problems is about and what you must find.

1. Mother bought 3 pairs of socks for Joan at 35¢ a pair. How much did the socks cost?

2. Joan spent $0.25 for candy and $1.79 for her father's present. She spent _?_ for these things.

3. Joan saw a basket for $1.19. She bought it for her mother and then had 42¢ left. How much did Joan have before buying the basket?

4. Joan bought each of her 4 sisters a 15¢ present. How much did Joan have to pay for the four presents?

5. Mother also spent 15¢ for thread, 25¢ for buttons, 5¢ for needles, and 95¢ for cloth, or how much in all?

6. Mother said that she would buy Joan a record for $1.80 if Joan would save $\frac{1}{3}$ of the money. How much money would Joan have to save for the record?

7. On the way home, Joan's mother counted her money. She had a quarter, a dime, a nickel, and 5 pennies. How much money was this?

Which Process Should You Use?

Selecting the process in problems without numbers [O]

To solve problems, you must decide when to add, subtract, multiply, or divide. Look again at page 103.

Tell what to do to solve problems 1 to 7, below.

1. If you know how many candles go in a holder and how many candles you have in all, how can you tell how many holders you can fill?

2. If you know how many candles you had and how many are left, how can you tell how many you used?

3. If you know the cost of a pencil and plan to buy several, how can you tell the total cost?

4. If you know how many books are in the closet and on the shelf and on the table, how can you tell how many books there are in all?

5. If you know how many foreign stamps a boy has, and he says he will keep a certain number and give you the rest, how can you tell how many he will give you?

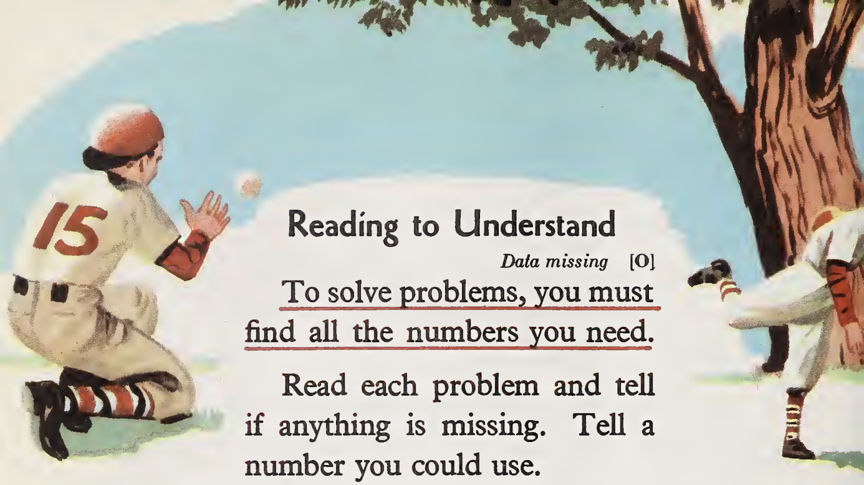
6. If you know the cost of a stamp, how can you tell how many you can buy with your money?

7. If your mother knows how many eggs she has and how many eggs it takes to make a cake, how can she tell how many cakes she can make?

Solving problems [W]

To solve problems, you must understand the meaning of the problem and know which process to use.

Solve problems 1 to 7 on page 202. Write your work on paper.



Reading to Understand

Data missing [O]

To solve problems, you must find all the numbers you need.

Read each problem and tell if anything is missing. Tell a number you could use.

1. Mike kept pitching the ball to Tom. Then Tom had his turn of pitching to Mike. How many more times did Tom pitch than Mike?

2. Mike made 12 wild pitches. Tom made 6 more than Mike. How many wild pitches did Tom make?

3. Tom has saved 38¢. Has he enough to buy the new baseball he wants?

4. In one game, Tom's team made 8 more runs than Jack's team. How many runs did Tom's team make?

5. Jack's team made 12 errors in the game. Tom's team made only $\frac{1}{4}$ as many errors. How many errors did Tom's team make?

6. Tom's team made 3 times as many hits as Jack's team. How many hits was that?

7. During the game, Tom's team used 5 more players than Jack's team used. How many players did Tom's team use?

Making Your Own Problems

Making definite type of question [W]

Make the kind of problem the letter tells you to.

1. One third of the 414 workers in a factory work from 4:00 A.M. to 12 M. D.

2. About ½ of the 414 workers drive automobiles to work. D.

3. Mr. Snow works 176 hours in 4 weeks. D.

4. On Mr. Snow's job, the pay is $1.65 an hour for an 8-hour day. M.

5. Mr. Allen works part of each week. In 3 weeks he earned $29.70, $36.50, and $26.95. A.

6. Out of his weekly pay of $65.00, Mr. Daniels sets aside $4.50 for Savings Bonds. S.

7. Each week, food costs the Daniels family about 3 times as much as the $13.50 a week it used to cost. M.

8. Once the factory had to let go from their work 168 of its 414 workers. S.

9. Of the 168 men who lost their jobs, 78 found new jobs at once. S.

Don't Let Words Trick You!

Cue words [O]

Instead of studying the meaning of the problem to find out if he is to add or subtract or to multiply or divide, Bill just looks for special words. Quite often by studying only these words Bill makes mistakes in the problems.

In Ex. 1 to 4, tell what Bill should have thought in order to choose the right process.

Bill divided for Ex. 1 because he saw "each." He should have found the product of six 2's. Explain.

1. Each of 6 boys has 2 baseballs. How many baseballs have they altogether?

Bill added in Ex. 2 because he saw "in all." What would you do?

2. In all, there are 32 children in our room. Sixteen are boys. How many are girls?

The word "less" in Ex. 3 made Bill subtract. Why is this not a subtraction problem?

3. I have 15¢. That is 9¢ less than George has. How much has George?

The word "total" in Ex. 4 told Bill to add. What process would you use?

4. My book has a total of 150 pages. I have read 85 pages. How many pages have I yet to read?

Finding What Is Wrong

Detecting errors in problem-solving [O]

Problems 1 to 4 were not solved correctly. The work is shown beside each problem. Can you explain why the mistakes were made?

1. The boys' basketball team made a total of 211 points. The girls' team made 185 points. How many fewer points did the girls make?

$$\begin{array}{r}211\\185\\\hline 396\end{array}$$

2. Mr. Fox spends $5.28 for his bus tickets each week going to and from work. He rides on the bus 6 days. How much does Mr. Fox spend for tickets each day?

$$\begin{array}{r}\$5.28\\\times 6\\\hline \$31.68\end{array}$$

3. After spending $2.89 of her $7.28, how much did Mrs. Frank have left?

$$\begin{array}{r}\$7.28\\-2.89\\\hline \$5.49\end{array}$$

4. There are 126 cards for a game and 3 children playing. If each child has the same number of cards, how many will each one have?

$$\begin{array}{r}39\\3\overline{)126}\\9\\\hline 36\\36\\\hline\end{array}$$

Do You Work Accurately?

Errors due to computation [W]

To solve problems, you must work accurately.

Mistakes have been made in some of these examples. Copy the wrong examples and work them correctly.

1.
$$\begin{array}{r} 849 \\ \underline{-360} \\ 589 \end{array}$$

2.
$$\begin{array}{r} \$1.08 \\ \underline{\times 7} \\ \$70.56 \end{array}$$

3.
$$\begin{array}{r} 500 \\ \underline{-86} \\ 424 \end{array}$$

4.
$$\begin{array}{r} 497 \\ \underline{+5{,}649} \\ 6{,}146 \end{array}$$

5.
$$\begin{array}{r} 112 \\ \underline{\times 9} \\ 9{,}918 \end{array}$$

6.
$$\begin{array}{r} 32 \\ 7\overline{)2{,}114} \\ \underline{21} \\ 14 \\ \underline{14} \end{array}$$

7.
$$\begin{array}{r} \$5.09 \\ 6\overline{)\$30.54} \\ \underline{30} \\ 54 \\ \underline{54} \end{array}$$

8.
$$\begin{array}{r} 62{,}R5 \\ 7\overline{)4{,}345} \\ \underline{42} \\ 14 \\ \underline{14} \\ 5 \end{array}$$

Problem-solving; essential abilities [O]

Your work on pages 202 to 208 has been to help you with problem-solving.

To be able to solve problems, you must

a. understand what the problem is about and what you are asked to find.

b. study the problem carefully to see whether groups are to be put together or taken apart.

If groups are to be put together you must decide whether to add or multiply. If groups are to be taken apart, you must decide whether to subtract or divide.

c. be able to find all the numbers you need to use.

d. work accurately.

To Keep in Practice

[O]

1. Divide by 3 the numbers in column a in the box.

2. Divide b and c by 5.

3. Divide c and d by 7.

a	b	c	d
21	13	33	54
23	29	40	45
10	25	49	58
27	20	46	42
18	12	37	53

Estimate answers for these:

4. 51 + 37
5. 98 − 49
6. 82 − 58
7. 19 + 41
8. 78 − 21
9. 62 + 18

Tell the value of **n** in rows 10 to 15.

	a	b	c
10.	n ÷ 7 = 9	n = 60 − 8	n ÷ 7 = 7
11.	n ÷ 8 = 45	n + 8 = 48	6 × 7 = n
12.	56 = n × 7	8 × n = 32	54 − n = 48
13.	56 − n = 48	n + 7 = 63	35 − 7 = n
14.	n = 42 ÷ 6	10 = n + 6	36 = n × 6
15.	n ÷ 8 = 5	35 − n = 0	n × 9 = 54

[W]

16 to 19. Copy and add the numbers in each column in the box above. Check your sums.

20 to 25. Subtract 859 from each number below.

2,900   3,798   4,987   3,611   2,194   4,223

26 to 31. Subtract 2,067 from each number above.

32 to 37. Divide each number above by 7. Check.

38 to 43. Multiply each number below by 9. Check.

407   165   723   370   654   712

Finding Minuends

Adding to find n [O]

1. An addend is a number to be _?_.

2. A multiplicand is a number to be _?_.

3. A dividend is a number to be _?_.

A

456	minuend
−279	subtrahend
177	remainder, or difference

4. In A, 279 is the _?_. It is the number to be _?_.

5. In box A, the name for 456 is _?_.

6. Do you see most of the word "minus" in the word "minuend"? "Minus" means "less," so 456 is the number to be made _?_.

7. You check subtraction by adding the _?_ and the _?_. If their sum equals the _?_, the answer is correct.

B

$$\begin{array}{rr} n & 12 \\ -18 & +18 \\ \hline 12 & 30 \end{array}$$

C

$$\begin{array}{rr} n & 587 \\ -348 & +348 \\ \hline 587 & 935 \end{array}$$

8. For dinner we ate 18 of the rolls Mother made. Twelve rolls were left. How many rolls did Mother make? **n** − 18 = 12.

Study the work in box **B**. Tell why you can add to find **n**.

9. After selling 348 sheep, a farmer had 587 left. How many did he have at first? **n** − 348 = 587. Tell why the work in box **C** gives the answer.

If you know both the remainder (or the difference) and the subtrahend, you can find the minuend by adding.

[W]

Find the value of **n**. Write your work on paper.

10. $n - 26 = 79$
11. $n - 47 = 89$
12. $n - 63 = 122$
13. $n - 86 = 37$
14. $n - 52 = 101$
15. $n - 468 = 337$
16. $n - 513 = 288$
17. $n - 257 = 476$
18. $n - 484 = 419$
19. $n - 371 = 240$
20. $n - 757 = 508$
21. $n - 973 = 569$
22. $n - 1{,}048 = 775$
23. $n - 4{,}282 = 3{,}649$

Finding n in A., S., M., and D.

[W]

Find the value of **n** in each example. Be careful! Use the correct process each time.

1. $n \div 4 = 278$
2. $n = 507 - 264$
3. $n - 449 = 692$
4. $n = 8 \times 217$
5. $217 = 7 \times n$
6. $856 = n + 379$
7. $n \div 8 = 463$
8. $n - 437 = 352$
9. $206 = n \div 5$
10. $748 - n = 400$
11. 6 times n = 2,442
12. $n - 790 = 948$
13. n = 7 times 309
14. $4 \times n = 3{,}156$
15. n plus 392 = 758
16. $n \div 8 = 560$
17. n minus 3,184 = 2,568
18. $n = 3 \times 675$
19. $1{,}218 \div 2 = n$
20. $n - 609 = 5{,}885$

Can You Solve Problems?

Problem Test 5

Write your work for problems 1 to 7. Work carefully.

1. In the year 1950, the town of Ashby had 5,280 people. About $\frac{1}{6}$ of those people had radios in their homes. How many of the people of Ashby had radios?

2. In the year 1940 Ashby had 4,975 people. How many more people did Ashby have in 1950 than in 1940? Use a number from Ex. 1.

3. The count of people in 1950 showed that there were 267 families of 4 people each. How many people in all were in families of this size?

4. One third of these 267 families own their homes. How many of these families own their homes?

5. Mr. Fox, who lives in Ashby, owns three farms of 160 acres, 85 acres, and 228 acres. How many acres does Mr. Fox own in all?

6. On each of his 3 farms Mr. Fox plants 38 acres in oats. How many acres of oats does he plant in all?

7. Tom's father owns two stores in Ashby. One store is rented for $67.50 a month and the other, for $82.50. How much more rent does Tom's father get each month from the second store than from the first?

Do You Make Mistakes?

Diagnostic Test 5

	Copy and work rows 1 to 6.			Study Pages	Practice Sets
	a	**b**	**c**		
1.	$7\overline{)50}$	$8\overline{)60}$	$9\overline{)68}$	190	
2.	$\frac{1}{7}$ of 63	$\frac{1}{8}$ of 56	$\frac{1}{6}$ of 42	189, 190	39
	Check your work for these:				
	a	**b**			
3.	$5\overline{)302}$	$6\overline{)364}$		170, 196	37, 38, 40, 41
4.	$4\overline{)428}$	$7\overline{)\$28.56}$			
	Find **n** in rows 5 and 6.				
5.	$n \div 6 = 47$	$n \div 8 = 74$		192, 210	
6.	$n - 68 = 43$	$n - 92 = 83$			

Written Practice

M. and D.

1 to 6. Multiply each number below by 7. Check.

406 732 980 518 249 870

7 to 12. Multiply each number above by 6. Check.

13 to 18. Divide each number below by 8. Check.

405 185 371 2,036 5,130 4,828

19 to 24. Divide each number above by 9. Check.

Do You Understand?

Test of Information and Meaning 5

On your paper, write answers for Ex. 1 to 17.

Write an example in which

1. 347 is subtrahend.

2. 298 is dividend.

3. 146 is multiplicand.

4. 59 is an addend.

Write ounces or pounds or tons for Ex. 5 to 8.

5. Our pet crow weighs 12 _?_.

6. Our truck, when it is full, carries 3 _?_ of wheat.

7. The store sells potatoes in bags that hold 10 _?_.

8. Father's hat weighs 5 _?_.

Write "Yes" or "No" to answer Ex. 9 to 17.

9. Does "altogether" always mean "to add"?

10. To find $\frac{1}{9}$ of 45, can you write "$9\overline{)45}$" ?

11. In subtraction should the sum of the minuend and the remainder equal the subtrahend?

12. Are there 42 inches in a yard?

13. $8 \times 9 = 72$, so are there nine 8's in 72?

14. Is 56 the table number to use in $7\overline{)64}$?

15. Does 1 ton equal 2,000 ounces?

16. My telephone number is 7–008. Do you read this number, "Seven, eight"?

17. If you have eaten $\frac{1}{8}$ of a cake, was the cake large enough for 7 other pieces of the same size?

Written Practice

A., S., M., and D.

Copy the examples. Find and check all answers.

1. 465 × 2
2. 322 ÷ 4
3. 518 − 486
4. 413 ÷ 7
5. 5,069 + 3,478
6. 926 ÷ 3
7. 8 × 473
8. 701 − 260
9. 376 + 8,952
10. 709 × 6
11. 510 ÷ 6
12. 3 × $5.19
13. $47.31 − $29.28
14. 63 + 75 + 60 + 97
15. $18.14 ÷ 2
16. 438 + 708 + 569
17. 4 × $9.07
18. 924 − 796
19. 485 × 7
20. $48.40 ÷ 8

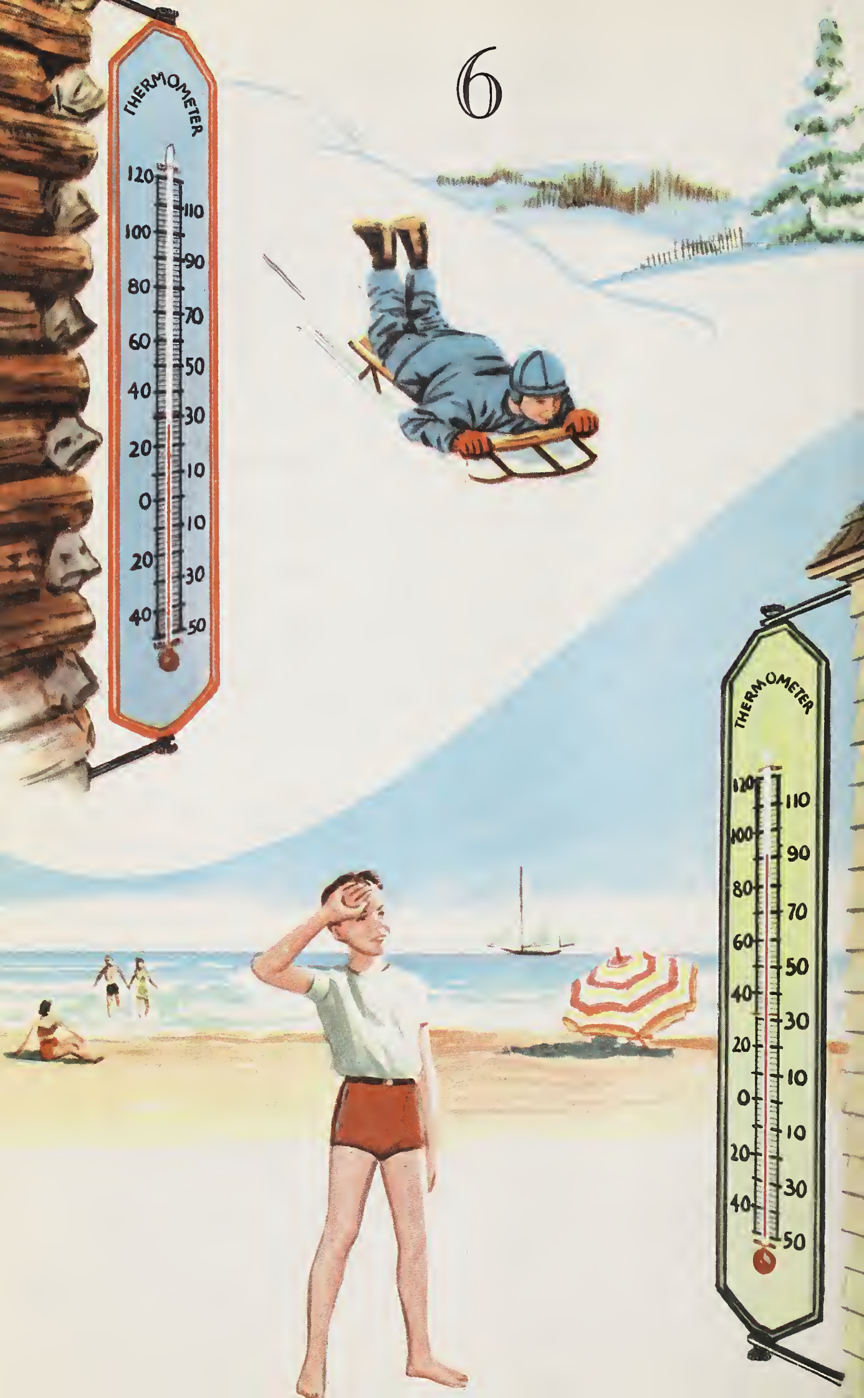
How Well Can You Figure?

Computation Test 5

Copy and work. Be sure to check each answer.

1. 2 × 863
2. 800 − 714
3. 645 + 207
4. 540 × 4
5. 511 ÷ 7
6. 466 − 179
7. 560 ÷ 9
8. $27.66 ÷ 6
9. 4 × 2,123
10. $52.24 − $41.78
11. 3 × $6.84
12. 4 × $5.07
13. 457 + 1,068 + 5,983
14. $47.04 ÷ 5

6


THERMOMETER
120
110
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90
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30
20
10
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30
40
50
THERMOMETER
120
110
100
90
80
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50
40
30
20
10
0
10
20
30
40
50

What Is the Temperature?

[O]

Fred lives where the winters are cold and the summers are warm or hot.

1. In what month might Fred have been playing with his sled as in the picture? Why?

2. How cold do you think it was that day when Fred looked at the thermometer?

3. Can you tell just how cold it was by looking at the thermometer near Fred on his sled?

Look at the number at the top of the red line running up the middle of the thermometer. The number near the top of the red line tells us something about the temperature. What does it tell?

4. In what month might Fred have been swimming as in the other picture? Why do you think so?

5. How hot do you think it was when Fred went swimming? Why do you think so?

6. Can you tell by the thermometer just how hot it was? How can you tell?

We use a cup to measure milk, a yardstick or a ruler to measure rope, and a thermometer to measure temperature.

The unit of measure for temperature is called a degree. We may say that the temperature is 65 degrees. We write 65 degrees as 65°. The little raised circle after the number means "degrees."

Measuring with the Thermometer

Freezing and boiling points [O]

Look at your school thermometer. What color is the line up the middle of the thermometer?

This line is made by liquid. When it is warm, the liquid goes up in the tube. When it is cold, the liquid goes down.

1. Hold your fingers around the bulb at the bottom of the tube. What happens? Can you explain why?

2. When the temperature is as low as 32°, water will start to freeze. What do we mean by "temperatures above freezing"? What does "below freezing" mean?

3. Water begins to boil when its temperature is at 212°. We sometimes call 212° "the boiling point of water." Will water boil at 99°?

4. When it is very cold, the liquid goes as low as zero degrees (0°), or even lower. What do we mean by "5 degrees below zero"? "10 degrees above zero"?

5. When the temperature is 15 degrees above zero, will water freeze? Why?

6. Could the temperature be 60° at noon one day and 25° by ten o'clock that night?

7. Where you live, about how high does the temperature get on the hottest day in summer? About how low does it get on the coldest night in winter?

8. Draw a large thermometer on the blackboard. Point to the places where the liquid would stop if the temperature were 40°; 88°; 0°; 112°; 2° below zero; 98°; 8° below zero.

More Multiplication and Division Facts

Whole stories involving 8 [W]

a	b	c	d
6	7	9	8
6	7	9	8
6	7	9	8
6	7	9	8
6	7	9	8
6	7	9	8
6	7	9	8
6	7	9	8
48	56	72	64

1. Write the multiplication fact for Ex. a.

2. Under this M. fact write the other M. fact to go with it.

3. Under the M. facts write two D. facts that go with them.

4. Now write two M. facts and two D. facts for column b.

5. Write the whole story in M. and D. for column c.

6. Write the M. fact for column d. Has it another M. fact? Write the one division fact to go with column d.

7. Copy rows a to i. Fill in the missing parts to make whole stories in multiplication and division.

a.	8 × 1 = 8	1 × 8 = 8	8 ÷ 1 = 8	8 ÷ 8 = 1
b.	8 × 2 = 16	2 × 8 = 16	16 ÷ 2 = 8	-?-
c.	8 × 3 = 24	-?-	24 ÷ 3 = 8	-?-
d.	-?-	4 × 8 = 32	32 ÷ 4 = 8	-?-
e.	8 × 5 = 40	-?-	-?-	40 ÷ 8 = 5
f.	-?-	6 × 8 = 48	48 ÷ 6 = 8	-?-
g.	8 × 7 = 56	-?-	56 ÷ 7 = 8	-?-
h.	-?-		64 ÷ 8 = 8	
i.	-?-	9 × 8 = 72	-?-	72 ÷ 8 = 9

Which six facts have you not had in other tables?

Problems about a Party

Using M. facts for 8's and for 8 [W]

Write the M. fact for each problem.
Find out by adding if you need to.

1. In the playroom there were 8 children in each of the 5 rows of seats. How many were there for the party?

2. Before the party, 9 boys each carried 8 books to the library. How many books in all was that?

3. A pint of ice cream cost 8 nickels, or _?_ cents.

4. A quart of ice cream serves 6 children. How many children would 8 quarts serve?

5. There are 8 paper ice-cream spoons in a package. In 7 packages, how many spoons were there?

6. Each cake is cut into 8 pieces. How many pieces in all will 6 cakes make?

7. Pencils for a game were put up 8 in a package. How many pencils were there in 8 packages?

8. For a game, Miss King made bundles of 7 tickets each. How many tickets were in 8 bundles?

Making tables of M. facts for 8's and for 8

Make tables of multiplication facts for 8's and for 8 like those you made for 6's and for 6 on page 155.

Practice on the Multiplication Facts for 8's and for 8

Finding correct products [O]

Some of these products are wrong. Say the products by rows. If the product given is wrong, give it correctly.

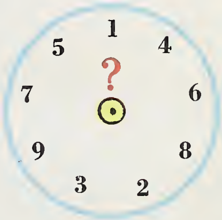
	a	b	c	d
1.	6 × 8 = 48	9 × 8 = 74	2 × 8 = 16	3 × 8 = 24
2.	7 × 8 = 56	5 × 8 = 45	8 × 5 = 30	9 × 8 = 84
3.	8 × 4 = 32	4 × 8 = 24	8 × 1 = 10	8 × 9 = 54
4.	8 × 2 = 15	8 × 8 = 56	9 × 8 = 66	8 × 6 = 42
5.	3 × 8 = 16	8 × 9 = 72	8 × 7 = 56	8 × 4 = 36
6.	5 × 8 = 40	7 × 8 = 42	8 × 3 = 24	7 × 8 = 48
7.	2 × 8 = 18	8 × 6 = 48	6 × 8 = 54	8 × 2 = 16
8.	8 × 7 = 48	8 × 5 = 40	8 × 4 = 42	6 × 8 = 56
9.	8 × 3 = 28	7 × 8 = 46	8 × 9 = 70	8 × 7 = 53
10.	8 × 6 = 49	9 × 8 = 72	4 × 8 = 32	8 × 8 = 64

Extra Practice. Work Set 42.

To Keep in Practice

Multiplication [W]

Copy this multiplication circle and write any number from 2 to 8 where you see ? in the circle.



Outside your circle beside each number, write the product of that number multiplied by the one you put in the centre.

Then do the same thing, using other numbers in the centre.

Multiplication Facts for 8's

8	8	8	8	8	8	8	8	8
×1	×2	×3	×4	×5	×6	×7	×8	×9
8	16	24	32	40	48	56	64	72

Multiplication Facts for 8

1	2	3	4	5	6	7	8	9
×8	×8	×8	×8	×8	×8	×8	×8	×8
8	16	24	32	40	48	56	64	72

Make study cards for facts that are hard for you.

Turn back to page 221. Cover the products of the examples and practise saying the facts.

Reading Problems Carefully

Extra numbers in problems [O]

1. The Ball family spent all day Saturday at the Fair. For the picnic lunch, Mrs. Ball bought 1 quart of berries for 52¢ and 2 dozen cookies at 38¢ a dozen. How much did the cookies cost?

To solve Ex. 1, must you use all four numbers, 1, 52¢, 2, and 38¢? Explain. Do not solve the problem.

In many problems, like Ex. 1, there are numbers that you do not use in solving the problem.

Read Ex. 2 to 6 but do not solve them. Instead, tell which numbers to use and what to do with them.

2. Tickets to enter the Fair Grounds cost 50¢ each. Mr. Ball gave the ticket man a $5 bill. How much did all the tickets cost for the 4 members of the Ball family?

3. Mr. Ball bought $1.75 cowboy hats and $1.50 gloves for both Jack and Sally. How much did Mr. Ball have to pay for the 2 hats?

4. All 4 members of the Ball family had a ride on the merry-go-round. Each ticket cost 28¢. Mr. Ball paid for the tickets with $1.25. How much did the 4 tickets cost?

5. Sally saw a watch she liked for $1.50, a doll for $2.75, and a bracelet for $1.25. She had $3 to spend, so she bought only the watch and the bracelet. How much did Sally spend?

6. Jack wanted to spend some of his $3.50 doing things. He rode a pony for 25¢ and went into the Side Show for 40¢. He rode on the Whip for 35¢ and on an airplane for $2.00. How much did Jack spend in all?

[W]

Now go back and solve each problem.

Test Yourself 15

[W]

Write the products on folded paper.

	a	b	c	d	e	f	g	h	i
1.	8 ×5	9 ×6	4 ×8	7 ×7	8 ×6	5 ×9	6 ×8	7 ×9	3 ×8
2.	4 ×9	7 ×5	4 ×6	6 ×9	4 ×7	8 ×3	5 ×7	6 ×5	4 ×5
3.	8 ×9	9 ×5	6 ×7	9 ×8	8 ×7	5 ×8	7 ×6	9 ×7	5 ×6
4.	8 ×4	7 ×3	9 ×4	8 ×8	3 ×9	7 ×4	3 ×6	9 ×3	7 ×8

Practice for Carrying

[W]

Write the answers on folded paper.

	a	b	c	d
1.	8 × 6 + 5	4 × 8 + 3	6 × 8 + 4	8 × 9 + 7
2.	5 × 9 + 4	8 × 8 + 6	9 × 7 + 7	6 × 9 + 5
3.	7 × 8 + 5	3 × 9 + 2	7 × 6 + 5	7 × 8 + 4
4.	6 × 7 + 4	5 × 8 + 4	8 × 7 + 5	8 × 5 + 6
5.	8 × 9 + 6	7 × 9 + 6	3 × 8 + 2	5 × 9 + 3
6.	9 × 4 + 6	8 × 6 + 6	9 × 6 + 6	9 × 8 + 7
7.	5 × 8 + 3	9 × 5 + 7	8 × 8 + 5	2 × 8 + 1

Write the work for the examples in rows 8 and 9.

8.	8 × 27	6 × 85	9 × 68	3 × 84
9.	4 × 856	5 × 384	7 × 278	8 × 685

8 as Divisor or Quotient

[W]

Copy rows 1 to 6 and write all the quotients you can. If you need to, use M. facts or subtract.

	a	b	c	d	e	f
1.	$5\overline{)40}$	$7\overline{)56}$	$4\overline{)36}$	$6\overline{)42}$	$7\overline{)35}$	$\frac{1}{4}$ of 32
2.	$6\overline{)54}$	$8\overline{)24}$	$3\overline{)27}$	$8\overline{)48}$	$6\overline{)30}$	$\frac{1}{8}$ of 16
3.	$9\overline{)72}$	$4\overline{)28}$	$2\overline{)18}$	$9\overline{)63}$	$3\overline{)21}$	$\frac{1}{9}$ of 45
4.	$7\overline{)49}$	$5\overline{)45}$	$4\overline{)24}$	$7\overline{)28}$	$8\overline{)40}$	$\frac{1}{5}$ of 35
5.	$9\overline{)36}$	$8\overline{)56}$	$9\overline{)54}$	$8\overline{)32}$	$6\overline{)36}$	$\frac{1}{8}$ of 64
6.	$3\overline{)24}$	$7\overline{)63}$	$2\overline{)16}$	$8\overline{)72}$	$7\overline{)42}$	$\frac{1}{6}$ of 48

Making tables

7. As you did on page 189, use the left side of each box to help you write tables of division facts.

D. Facts Divisor 8	**Fraction Facts**
$8 \div 8 = 1$	$\frac{1}{8}$ of $8 = 1$
$16 \div 8 = 2$	$\frac{1}{8}$ of $16 = 2$
and so on to	and so on to
$64 \div 8 = ?$	$\frac{1}{8}$ of $64 = ?$
$72 \div 8 = ?$	$\frac{1}{8}$ of $72 = ?$

D. Facts Quotient 8	**Fraction Facts**
$8 \div 1 = 8$	
$16 \div 2 = 8$	$\frac{1}{2}$ of $16 = 8$
and so on to	and so on to
$64 \div 8 = ?$	$\frac{1}{8}$ of $64 = ?$
$72 \div 9 = ?$	$\frac{1}{9}$ of $72 = ?$

8. Now, as on page 189, use the right side of each box to help you write tables of fraction facts.

9. In your tables, circle the facts which were not in tables you have had.

Extra Practice. Work Set 43.

Yes or No? Why?

D. problems [O]

1. If you eat $\frac{1}{8}$ of the 48 apples in a box, will you eat 7 of the apples?

2. If $\frac{1}{6}$ of the 48 apples are bad, are there 9 bad apples?

3. If your father sleeps $\frac{1}{3}$ of the 24 hours in a day, does he sleep 8 hours each day?

4. If 5 boys in your room share 40 bird pictures equally, should each boy have 9 pictures?

5. If you put 8 plums in each pile, will you be able to make 8 piles from 56 plums?

6. Can your father buy a 6¢ stamp with $\frac{1}{8}$ of 40¢?

7. If you need pieces of cloth 8 inches long for a kite tail, could you get 5 of them from a piece of cloth 32 inches long?

8. If 48 dishes are in piles of 8, will there be 6 piles?

9. Is a mouse as tall as $\frac{1}{4}$ of 32 inches?

10. Can a mouse be as long as $\frac{1}{7}$ of 56 inches?

11. If you write 64 spelling words in columns of 8 words each, will you have 8 columns?

12. If you read 8 pages a day, can you finish a book of 72 pages in 8 days?

13. If a lollipop costs 5¢, can you buy 8 for 32¢?

14. If 72 pencils are divided equally among 8 rows of children, will there be 9 pencils for each row?

Division Facts, Divisor 8

1	2	3	4	5	6	7	8	9
$8\overline{)8}$	$8\overline{)16}$	$8\overline{)24}$	$8\overline{)32}$	$8\overline{)40}$	$8\overline{)48}$	$8\overline{)56}$	$8\overline{)64}$	$8\overline{)72}$

Division Facts, Quotient 8

8	8	8	8	8	8	8	8	8
$1\overline{)8}$	$2\overline{)16}$	$3\overline{)24}$	$4\overline{)32}$	$5\overline{)40}$	$6\overline{)48}$	$7\overline{)56}$	$8\overline{)64}$	$9\overline{)72}$

This table is easy because most facts were in your earlier tables. Make study cards as you need to.

Uneven Division

Table numbers for dividing by 8 and by 9 [O]

1. Say the table numbers from the tables above.

2. Tell the table numbers you know for dividing by 9.

3. Dividing by 8. Give the table number for dividing 65, 66, 67, 68, 69, 70, 71; for dividing 73, 74, 75, 76, 77, 78, 79.

4. Dividing by 9. Give the table number for dividing 73, 74, 75, 76, 77, 78, 79, 80.

To Keep in Practice

A., S., M., D. [W]

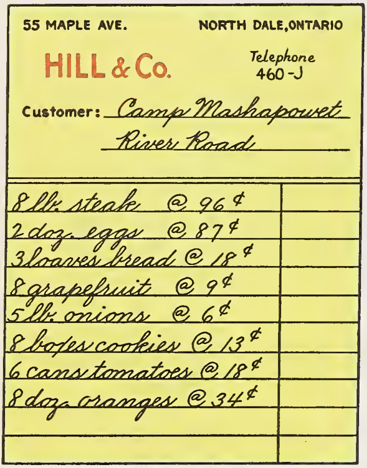
Copy and work. Check all answers.

	a	b	c
1.	8 × \$7.05	$3\overline{)\$2.91}$	\$60.17 − \$49.28
2.	$4\overline{)\$3.76}$	7 × \$9.08	59 + 65 + 78 + 30
3.	$6\overline{)\$5.22}$	2 × \$8.09	286 − 279

Buying for Camp Mashapowet

Using multiplication [O]

Answer questions 1 to 9 by studying the sales slip.



55 MAPLE AVE. NORTH DALE, ONTARIO

HILL & Co. Telephone 460-J

Customer: Camp Mashapowet
River Road

8 lb. steak @ 96¢	
2 doz. eggs @ 87¢	
3 loaves bread @ 18¢	
8 grapefruit @ 9¢	
5 lb. onions @ 6¢	
8 boxes cookies @ 13¢	
6 cans tomatoes @ 18¢	
8 doz. oranges @ 34¢	

1. Who bought the food?

2. Where is the camp?

3. Who sold the things?

4. Where is the store?

5. Find and say the telephone number of the store.

6. How much steak did the camp buy? What was the cost for a pound? ("@ 96¢" means "at 96¢ a pound")

7. Did the 5 pounds of onions cost more than 25¢?

8. Would 75¢ pay for the 8 grapefruit?

9. How much a dozen were the eggs? the oranges?

[W]

10. Copy the sales slip. Find the cost of each thing and write it in the column at the right of the list.

11. Find the total which had to be paid.

12. Make out a sales slip to yourself. Use four things on the camp's sales slip. Change sales slips with someone and find the cost of the things bought.

13. Make out a sales slip using your street and house number. Make believe that you bought these things from a store in your town:

3 yd. ribbon @ 16¢	5 yd. of cloth @ 68¢
2 boxes of pins @ 25¢	2 doz. buttons @ 39¢

14. Find the cost of each thing and the total in Ex. 13.

Test Yourself 16

[W]

Write quotients on folded paper. Watch for remainders.

	a	b	c	d	e	f	g
1.	$8\overline{)40}$	$6\overline{)54}$	$6\overline{)49}$	$4\overline{)33}$	$8\overline{)64}$	$3\overline{)24}$	$5\overline{)42}$
2.	$6\overline{)40}$	$8\overline{)56}$	$9\overline{)48}$	$7\overline{)45}$	$4\overline{)37}$	$8\overline{)36}$	$7\overline{)56}$
3.	$9\overline{)64}$	$8\overline{)20}$	$9\overline{)74}$	$3\overline{)29}$	$8\overline{)50}$	$7\overline{)63}$	$6\overline{)50}$
4.	$5\overline{)44}$	$8\overline{)67}$	$6\overline{)45}$	$7\overline{)65}$	$9\overline{)38}$	$8\overline{)75}$	$7\overline{)52}$
5.	$9\overline{)56}$	$7\overline{)59}$	$8\overline{)52}$	$5\overline{)38}$	$8\overline{)43}$	$4\overline{)35}$	$8\overline{)33}$
6.	$9\overline{)76}$	$8\overline{)27}$	$5\overline{)45}$	$8\overline{)73}$	$7\overline{)42}$	$9\overline{)66}$	$8\overline{)58}$

Making a Quilt

Making problems [W]

Write six good problems about this story:

Jean's club is making a quilt for the fair. Jean's mother is helping.

The pattern for the quilt calls for a total of 744 squares of cloth. Each of the 6 girls in the club will bring her share of the squares.

They already have finished 365 of the squares. One of the girls says that she has enough cloth left to make 95 more squares.

They have finished putting squares together to make 4 rows for the quilt. They used 24 squares in each row.

A large piece of the quilt will take 8 pink, 10 gray, 12 checked, and 16 striped squares. Four small pieces will each take 27 squares.

Jean's mother estimates that in all it will take about 80 hours of work to make the quilt. She told the girls that they have finished about $\frac{1}{2}$ of the work.

Remembering about Fractions

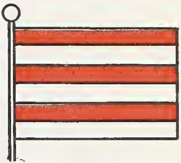
Parts of a whole; relative sizes of fractions **[O]**

1. When 8 boys shared a watermelon equally, it had to be divided into _?_ pieces. Each piece made _?_ of the whole watermelon.

2. Three of the boys did not eat their pieces. So 3 of the _?_ of the watermelon were left.

3. The fraction $\frac{5}{8}$ tells how much of the watermelon was gone. In this fraction, the 8 is called the _?_, and the 5 is called the _?_.

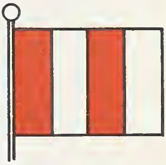
A



4. Name one of the equal parts in the fraction $\frac{5}{8}$. What does the 5 tell?

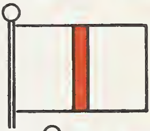
5. In flag **A**, the red stripes make up _?_ of the flag. _?_ of the flag is white.

B



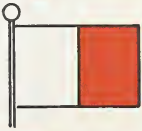
6. In flag **B**, the red bars make up _?_ of the flag. _?_ of the flag is white.

C



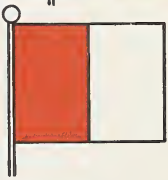
7. In flag **C**, the red part is one of 3 parts but not $\frac{1}{3}$ of the flag. Why?

D



8. One half of flag **D** and one half of flag **E** are red. Why is there more red in flag **E** than in flag **D**?

E



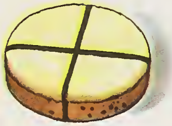
9. When you are hungry, why will $\frac{1}{5}$ of a big cake fill you up more than $\frac{1}{5}$ of a cooky?

Equal Wholes and Fractions

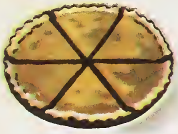
Fractions that equal 1 whole [W]

The apple in the picture is divided into two equal parts, or halves. This shows that

a. 1 apple = 2 halves, or $\frac{2}{2}$.
b. one whole thing = $\frac{2}{2}$.
c. $1 = \frac{2}{2}$.

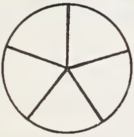


1. Write about the cake in three ways, as in a, b, and c above.



2. Do the same for the pie.

3. Do the same for the circle.



4. Draw a large rectangle: ▭. Divide it into thirds. Then write three things about it, as in a, b, and c above.

Copy Ex. 5 to 8. If you need help in finding answers, draw circles and divide them. Draw carefully!

5. $1 = \frac{?}{4}$ **6.** $1 = \frac{?}{6}$ **7.** $1 = \frac{?}{5}$ **8.** $1 = \frac{?}{8}$

Copy Ex. 9 to 15 and fill in what is missing.

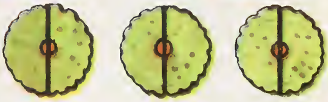
9. A whole thing has -?- fifths. $1 = \frac{?}{5}$
10. A whole thing has -?- tenths. $1 = \frac{?}{10}$
11. A whole thing has -?- sixths. $1 = \frac{?}{6}$
12. A whole thing has -?- ninths. $1 = \frac{?}{9}$
13. A whole thing has -?- sevenths. $1 = \frac{?}{7}$
14. A whole thing has -?- eighths. $1 = \frac{?}{8}$
15. A whole thing has -?- fourths. $1 = \frac{?}{4}$

Each orange in the picture has been divided into fourths. This shows that

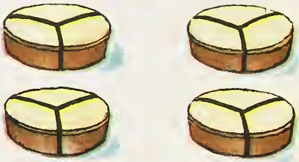
a. 1 orange = $\frac{4}{4}$.

b. 2 oranges = $\frac{8}{4}$.

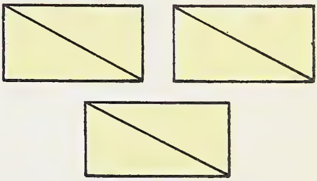
c. $2 = \frac{8}{4}$.



16. Write about the 3 cookies in three ways as in a, b, and c above.



17. Do the same for the 4 cakes.



18. Do this for the 3 rectangles.

19. Draw two lines and divide each line into fourths. Then write about the lines in three ways as in a, b, and c above.

20. Draw three squares and divide each one into eighths. Write about the squares as in a, b, and c above.

Draw and divide pies if you need help in Ex. 21 to 24.

21. $4 = \frac{?}{2}$ **22.** $5 = \frac{?}{3}$ **23.** $4 = \frac{?}{4}$ **24.** $3 = \frac{?}{5}$

Practice in Multiplication and Division

[W]

1 to 6. Multiply each number below by 8.

407 690 947 379 584 352

7 to 12. Multiply each number above by 7. Check.

13 to 18. Divide each number below by 8.

748 580 424 136 3,625 5,610

Four-Figure Quotients

D. of 4-place numbers [O]

1. How many gallons of water does this tank hold when it is $\frac{1}{4}$ full?

$\frac{1}{4}$ of 8,000 = ?   8,000 = 8 thousands

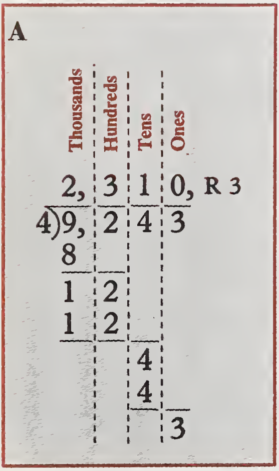
8 thousands ÷ 4 = 2 thousands

The tank holds 2,000 gallons of water when it is $\frac{1}{4}$ full.

Explain the quotients in Ex. 2 to 5.

2. $\begin{array}{r}3{,}000\\ 2\overline{)6{,}000}\end{array}$ 3. $\begin{array}{r}2{,}000\\ 3\overline{)6{,}000}\end{array}$ 4. $\begin{array}{r}1{,}000\\ 7\overline{)7{,}000}\end{array}$ 5. $\begin{array}{r}4{,}000\\ 2\overline{)8{,}000}\end{array}$

You divide thousands as you divide ones.



6. Study the work in box A.

Divide the thousands: (9 ÷ 4). *Think*, "2." Write "2" in the thousand's place in the quotient. Multiply; subtract; and then bring down the 2 hundreds.

Divide the hundreds: (12 ÷ 4). *Think*, "3." Write "3" in the hundred's place in the quotient. Multiply; subtract; and then bring down the 4 tens.

Divide the tens. Tell how to divide the tens.

Divide the ones. Why is 0 the quotient figure? What is the remainder?

7. The coat in the window sells at $\frac{1}{4}$ less than the usual price of \$48.20. How much is taken off the usual price?

Tell how to finish the work in box B. [W]

B

$$\begin{array}{r} \$\,?\,2.0\,? \\ 4\overline{)\$48.20} \\ 4 \\ \hline 8 \\ 8 \\ \hline 20 \\ 20 \\ \hline \end{array}$$

Copy, divide, and check.

	a	b	c	d
8.	$2\overline{)5,412}$	$2\overline{)2,797}$	$8\overline{)\$82.61}$	
9.	$9\overline{)9,976}$	$5\overline{)9,703}$	$3\overline{)\$85.82}$	
10.	$6\overline{)4,904}$	$4\overline{)3,748}$	$2\overline{)\$91.81}$	$9\overline{)9,165}$
11.	$5\overline{)4,785}$	$7\overline{)8,256}$	$3\overline{)\$58.41}$	$7\overline{)9,966}$
12.	$4\overline{)7,491}$	$6\overline{)6,579}$	$8\overline{)\$64.58}$	$6\overline{)\$48.45}$

Extra Practice. Work Set 44.

What Is the Value of n?

Finding n in A., S., M., D. [O]

	a	b	c	d
1.	$72 = n \times 8$	$56 = n + 49$	$48 = 8 \times n$	$64 - 8 = n$
2.	$72 - n = 64$	$5 \times n = 40$	$9 \times n = 54$	$6 \times n = 54$
3.	$56 \div n = 7$	$n + 8 = 10$	$n \div 8 = 9$	$36 \div n = 9$
4.	$60 - n = 56$	$63 \div n = 7$	$n \times 5 = 45$	$n + 7 = 65$

Written Practice

Copy and work.

	a	b	c	d
1.	$4\overline{)368}$	2×489	$3\overline{)242}$	$\$8.87 - \$8.06$
2.	$6 \times \$7.96$	542×8	$5\overline{)930}$	$6{,}900 - 5{,}891$
3.	307×3	$8\overline{)966}$	$7 \times \$13.97$	$4{,}358 + 2{,}907$
4.	$9\overline{)\$54.68}$	$5 \times \$7.49$	$6\overline{)\$65.09}$	$\$5.75 - \$0.88$
5.	$7\overline{)569}$	$2\overline{)\$73.01}$	$9\overline{)952}$	$\$17.13 - \$7.74$

So You Won't Forget!

Completing A., S., M., and D. examples [W]

Here is a harder kind of practice.

Copy and work Ex. 1 to 10. You have to find the figures that are missing in each example.

In Ex. 1, the missing figure is 3. Why?

1. $$\begin{array}{r} 298 \\ +545 \\ \hline 84? \end{array}$$

2. $$\begin{array}{r} 8{,}85? \\ -5{,}945 \\ \hline 2{,}?06 \end{array}$$

3. $$\begin{array}{r} ?8\text{, R}? \\ 9\overline{)705} \\ \underline{63} \\ ?? \\ \underline{72} \\ ? \end{array}$$

4. $$\begin{array}{r} 8? \\ 8\overline{)6?2} \\ \underline{?4} \\ 32 \\ \underline{32} \end{array}$$

5. $$\begin{array}{r} 7{,}?65 \\ -?{,}29? \\ \hline 867 \end{array}$$

6. $$\begin{array}{r} 367 \\ +?7? \\ \hline 842 \end{array}$$

7. $$\begin{array}{r} 1{,}5?2 \\ -32? \\ \hline ?{,}?58 \end{array}$$

8. $$\begin{array}{r} 5{,}?7? \\ +?{,}8?4 \\ \hline 7{,}156 \end{array}$$

9. $$\begin{array}{r} 2?6 \\ \times 7 \\ \hline ?{,}65? \end{array}$$

10. $$\begin{array}{r} 83? \\ \times 6 \\ \hline ?{,}?80 \end{array}$$

[O]

Turn to the bottom of page 224 and say the answers for Ex. 1 to 7, first by rows and then by columns.

Estimating Products

[O]

1. Each of 6 boxes holds 48 apples. About how many apples would you get if you bought the 6 boxes?

You can estimate the product when you want to know *about* how many.

48 is almost 5 tens. 6 × 5 tens = 30 tens, or 300. You would get about 300 apples.

2. Will $1.50 pay for three 39¢ books?

Estimate: 39 is almost 4 tens. 3 × 4 tens are 12 tens, or 120 (here, 120¢, or $1.20). Since $1.50 is more than $1.20, there is more than enough for the books.

[W]

Copy Ex. 3a. Use estimating to decide whether 260 or the product of 5 × 47 is larger. Circle the one you estimate to be larger. Do the same thing for the other examples.

	a	b	c
3.	260 or 5 × 47	233 or 3 × 81	605 or 8 × 77
4.	283 or 7 × 46	396 or 6 × 51	426 or 5 × 83
5.	301 or 4 × 79	250 or 8 × 28	800 or 9 × 77
6.	442 or 6 × 69	420 or 7 × 62	509 or 7 × 87
7.	150 or 4 × 39	600 or 8 × 82	322 or 8 × 46
8.	672 or 8 × 79	500 or 7 × 66	160 or 9 × 23
9.	480 or 5 × 88	605 or 9 × 68	310 or 4 × 73
10.	500 or 9 × 57	720 or 8 × 93	530 or 6 × 82

To see if what you circled is really larger, find the product for each multiplication example.

0's Side by Side in the Quotient

4-place dividend [O]

1. In a large toy factory, toy fire engines are packed 8 to a box. How many boxes of this size will be used to pack 8,016 fire engines?

Thousands	Hundreds	Tens	Ones
1,	0	0	2
8)8,	0	1	6
8			
	0	1	6
		1	6

Study the division in the box.

Divide the thousands: (8 ÷ 8). *Think,* "1". Write "1" in thousand's place in the quotient. Multiply; subtract; and bring down the 0 hundreds.

Divide the hundreds: (0 ÷ 8). Can you divide 0 hundreds? Then write "0" in hundred's place in the quotient and bring down the 1 ten.

Divide the tens: (1 ÷ 8). What quotient figure do you think? Then write "0" in ten's place in the quotient and bring down the 6 ones.

Divide the ones: You now have 16 ones to divide. Tell how to finish the dividing.

[W]

Copy Ex. 2 to 5 and finish the division.

2.	$\begin{array}{r}4{,}007\\2\overline{)8{,}014}\end{array}$	**3.**	$\begin{array}{r}500\\7\overline{)3{,}506}\end{array}$	**4.**	$\begin{array}{r}1{,}005\\5\overline{)5{,}025}\end{array}$	**5.**	$\begin{array}{r}2{,}300\\4\overline{)9{,}203}\end{array}$

Copy and divide. Be careful! Watch the quotient 0's!

	a	**b**	**c**	**d**	**e**
6.	$3\overline{)9{,}021}$	$2\overline{)8{,}017}$	$3\overline{)6{,}024}$	$7\overline{)6{,}025}$	$6\overline{)5{,}438}$
7.	$6\overline{)8{,}405}$	$8\overline{)6{,}495}$	$5\overline{)4{,}018}$	$3\overline{)2{,}401}$	$2\overline{)8{,}040}$
8.	$4\overline{)8{,}033}$	$3\overline{)2{,}702}$	$2\overline{)6{,}014}$	$9\overline{)9{,}063}$	$4\overline{)2{,}403}$
9.	$9\overline{)5{,}407}$	$5\overline{)7{,}048}$	$4\overline{)3{,}602}$	$7\overline{)7{,}705}$	$8\overline{)8{,}056}$
10.	$5\overline{)5{,}502}$	$4\overline{)2{,}803}$	$7\overline{)4{,}904}$	$6\overline{)9{,}604}$	$5\overline{)8{,}003}$

➔ **Extra Practice.** Work Set 45.

To Keep in Practice

[W]

Copy and work. Check all answers.

	a	**b**	**c**	**d**	**e**
1.	$\begin{array}{r}\$3.68\\-3.25\\\hline\end{array}$	$\begin{array}{r}\$2.07\\\times 4\\\hline\end{array}$	$\begin{array}{r}\$81.45\\-78.39\\\hline\end{array}$	$\begin{array}{r}\$7.65\\\times 5\\\hline\end{array}$	$\begin{array}{r}345\\650\\897\\+953\\\hline\end{array}$
2.	$3\overline{)\$6.06}$	$5\overline{)\$9.05}$	$6\overline{)\$24.58}$	$8\overline{)\$97.75}$	
3.	$\begin{array}{r}348\\+576\\\hline\end{array}$	$\begin{array}{r}7{,}110\\-789\\\hline\end{array}$	$\begin{array}{r}\$9.06\\\times 3\\\hline\end{array}$	$\begin{array}{r}\$5.90\\\times 7\\\hline\end{array}$	$\begin{array}{r}58\\79\\403\\467\\+38\\\hline\end{array}$
4.	$\begin{array}{r}3{,}869\\-497\\\hline\end{array}$	$\begin{array}{r}\$8.17\\\times 6\\\hline\end{array}$	$4\overline{)4{,}363}$	$7\overline{)5{,}638}$	

Practice in Multiplication and Division

[W]

Copy, and multiply or divide. Check all answers.

	a	b	c	d
1.	5×109	804×7	2×390	$8\overline{)602}$
2.	$2\overline{)9{,}401}$	$6\overline{)582}$	$3\overline{)968}$	873×4
3.	$4\overline{)3{,}603}$	$8 \times 1{,}006$	$9\overline{)573}$	$6\overline{)1{,}953}$
4.	6×160	$3\overline{)601}$	$4\overline{)410}$	$5\overline{)3{,}504}$

Liquid Measures and Dry Measures

[O]

When we measure by gallons or pints or quarts or pecks or bushels, we are using liquid or dry measures.

1. Which things below do you think we measure in units of liquid measure? in units of dry measure?

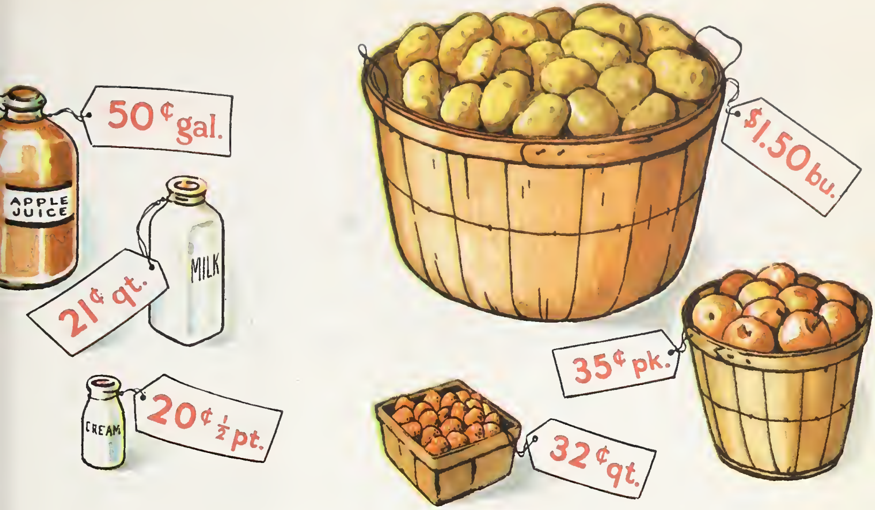
water
apples
wheat
vinegar
lemonade
peanuts
oats
peas
gasoline
milk
beans
paint
berries
oil
pears

Table of Liquid Measures

2 pt. = 1 quart (qt.)
4 qt. = 1 gallon (gal.)

Table of Dry Measures

2 pints (pt.) = 1 quart (qt.)
4 qt. = 1 gallon (gal.)
2 gal. = 1 peck (pk.)
4 pk. = 1 bushel (bu.)


50¢ gal.
APPLE JUICE
MILK
21¢ qt.
CREAM
20¢ ½ pt.
$1.50 bu.
35¢ pk.
32¢ qt.

Readiness for changing units [O]

2. Things like apples, potatoes, onions, peas, and pears are sold sometimes by the pound and sometimes by dry measure. Why do we say "dry"?

3. On page 240, tell which units in the table of dry measures are not used in the table of liquid measures?

4. Are pints and quarts the same size in dry measure as in liquid measure?

5. If you move tomatoes from small baskets into larger ones, are more or fewer baskets used?

6. If you change milk from large bottles to smaller ones, would you need more or fewer bottles?

When you change from larger to smaller containers, you need more containers.

When you change from smaller to larger containers, you need fewer containers.

Liquid Measures

Changing to another unit of measure [W]

1. If you pour 1 quart of fruit juice into measuring cups, how many cups of juice will you get?

1 quart = _?_ cups

Find how many cups of liquid there are in

2. 3 quarts of water

3. 1 pint of milk

4. 1 gallon of vinegar

5. ½ gallon of lemonade

Copy and finish Ex. 6 to 10. Then solve problem 11.

6. 6 gallons = _?_ quarts

7. 13 quarts = _?_ pints

8. 8 quarts = _?_ gallons

9. 18 pints = _?_ quarts

10. 5 pints = _?_ quarts and _?_ pint

PAINT 1 QT.
85¢
PAINT 1 PT.
45¢
PAINT 1 PT.
45¢

11. Jack bought a pint of paint at 45¢ to paint his doghouse. He had to buy another pint for a second coat. He could have bought a quart for 85¢. Would that have been cheaper? How much cheaper?

Copy and write "fewer" or "more" for Ex. 12 and 13.

12. To change liquids from gallon containers to quart containers, you will need _?_ containers.

13. To change liquids from quart containers to gallon containers, you will need _?_ containers.

Dry Measures

Changing to another unit of measure [W]

Write your work for Ex. 1 to 3.

1. Each of Mr. Bell's 8 horses eats 2 quarts of oats a day. Altogether, how many quarts do they eat?

2. Mrs. Bell gives her chickens 2 quarts of feed a day. In a week, how many quarts does she give them?

3. In his barn Mr. Bell has two bins. There are 12 pecks of wheat in one bin and 26 pecks in the other. How many pecks are there in all? How many bushels?

On your paper write the missing numbers.

4. 3 pecks = _?_ quarts

5. 5 bushels = _?_ pecks

6. 32 quarts = _?_ pecks

7. 1 bushel = _?_ quarts

Copy Ex. 8 and 9 and write "fewer" or "more."

8. In changing apples from bushel to peck containers, you will need _?_ containers.

9. In changing oats from quart to peck containers you will need _?_ containers.

Right or Wrong? Why?

[O]

Tell what is wrong in each of Ex. 1 to 5.

1. Our bottle holds $6\frac{1}{2}$ pecks of gasoline.

2. $\frac{2}{2}$ pound of sugar is equal to 2 pounds of sugar.

3. One gallon of milk will give a cup of milk to each of 24 children.

4. When the temperature is 90°, you need to wear an overcoat.

5. To put 8 bushels of corn in peck measures, you will need just 2 peck measures.

Tell the missing words in Ex. 6 to 9.

6. Numbers like $\frac{2}{3}$ are called _?_.

7. A whole thing can be thought of as _?_ sixths.

8. Water freezes at about _?_°.

9. $\frac{6}{3}$ apples are equal to _?_ apples.

Written Practice

A., S., M., and D.

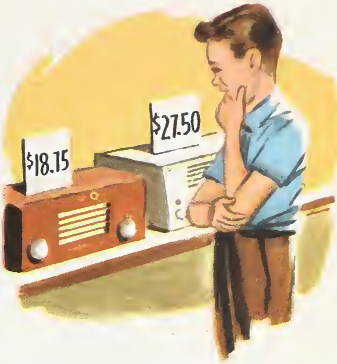
Copy, and work. Check all answers.

	a	b	c	d
1.	$3\overline{)\$2.40}$	$4 \times \$7.85$	$7\overline{)916}$	$9,063 - 8,827$
2.	762×6	$7 \times \$1.08$	$9\overline{)9,014}$	$57 + 68 + 99 + 72$
3.	$8\overline{)\$6.80}$	$3 \times 2,600$	$6\overline{)890}$	$\$8.00 - \$0.87$
4.	485×9	$4\overline{)\$80.36}$	$2\overline{)960}$	$456 + 370 + 908$
5.	$5 \times \$8.64$	$8 \times 1,080$	$5\overline{)\$9.50}$	$\$26.63 + \$9.56$

Can You Solve Problems?

Write the work for Ex. 1 to 8.

1. Tom wanted a radio. Use the picture to find how much Tom would save by buying the cheaper radio.



2. To buy the cheaper radio, Tom paid $\frac{1}{3}$ of the $18.75 from his savings. His father paid the rest. What was Tom's share?

3. Tom's mother bought a table for the radio at $3.75. Paint for it cost 98¢, and a brush cost 39¢. How much did the finished table cost in all?

4. Tom gets one of his programs at 570 on the radio dial. He gets another program at 960, or how many points farther along on the dial?

5. Aunt Sue's radio broke. A man worked 3 hours to fix it. At $2.25 an hour, how much was the bill?

6. After a new program, 4,208 letters were sent to a radio station. Only $\frac{1}{4}$ of the people who wrote, or _?_ people, did not like the program.

7. A station has 288 short programs from Monday through Saturday, the same number each day. On each of the 6 days how many such programs are there?

8. Aunt Sue can get $12.75 for her old radio if she buys a new one listed at $38.00. To get the new one, how much more would Aunt Sue have to pay?

Do You Make Mistakes?

Diagnostic Test 6

Copy, and divide.

	a	b	c	Study Pages	Practice Sets
1.	$8\overline{)56}$	$9\overline{)75}$	$\frac{1}{8}$ of 40	219, 225, 227	42, 43
2.	$6\overline{)48}$	$8\overline{)67}$	$\frac{1}{7}$ of 56		
	a	b			
3.	$7\overline{)9{,}206}$	$3\overline{)7{,}225}$		234, 235	44
4.	$8\overline{)5{,}073}$	$2\overline{)8{,}065}$			
5.	$4\overline{)4{,}037}$	$5\overline{)7{,}504}$		238	45
6.	$8\overline{)7{,}203}$	$3\overline{)9{,}021}$			

Do You Understand?

Test of Information and Meaning 6

Write answers for Ex. 1 to 5 on your paper.

1. Estimate which number would be larger.

a. 640 or 7 × 82   **b.** 430 or 9 × 53

2. Estimate the sum or the remainder.

a. 49 + 37   **b.** 83 − 58   **c.** 21 + 67   **d.** 79 − 37

3. Write two different fractions that equal a whole.

4. Write an example with 375 as the dividend.

5. Write the names of three things we measure with units of dry measure.

Write “Yes” or “No” to answer Ex. 6 to 15.

6. Does $\frac{2}{7}$ of a thing equal $\frac{5}{5}$ of the same thing?

7. To get $\frac{6}{3}$ apples, would you cut apples into sixths?

8. In the fraction $\frac{5}{9}$, is 5 the numerator?

9. To put 2 bushels of corn into peck containers, would you need 8 peck containers?

10. Does water boil at 32°?

11. Does 1 bushel equal 32 quarts?

12. Are estimated products just like real products?

13. Do 2 whole oranges make $\frac{8}{4}$ oranges?

14. Is it 12 hours from 7:00 A.M. to 7:00 P.M.?

15. Do 18 ounces of sugar weigh more than 1 pound?

How Well Can You Figure?

Computation Test 6

Copy, and work. You need not check your answers.

	a	b	c	d
1.	$\begin{array}{r}\$3.96\\ \times 6\\ \hline\end{array}$	$\begin{array}{r}\$8.00\\ -2.82\\ \hline\end{array}$	$\begin{array}{r}\$8.59\\ \times 7\\ \hline\end{array}$	$\begin{array}{r}\$5.37\\ +18.92\\ \hline\end{array}$
2.	$7\overline{)4{,}206}$	$3\overline{)902}$	$4\overline{)4{,}037}$	$8\overline{)809}$
3.	$\begin{array}{r}\$1.86\\ \times 9\\ \hline\end{array}$	$\begin{array}{r}\$\ 2.68\\ -0.95\\ \hline\end{array}$	$\begin{array}{r}\$14.87\\ \times 6\\ \hline\end{array}$	$\begin{array}{r}\$65.21\\ -8.19\\ \hline\end{array}$

4. 55 + 56 + 938 + 4,658

5. 7,469 + 438 + 1,507

6. 289 + 347 + 408 + 39

7. 6 + 0 + 9 + 8 + 8

7

GEOGRAPHY
STORYBOOKS
TRAVE
IOGRAPHY
HISTORY
ROBINSON CRUSOE
DANIEL DEFOE

Our School Library

Problem-solving: differentiating processes [W]

Write the numbers 1 to 6 on your paper. After each number write "A." or "S." or "M." or "D." to show how to work that problem. Do not solve.

1. Our school library has 247 travel books, 864 history books, 36 picture books, 1,566 storybooks, and 759 books of other kinds. In all, how many books are there?

2. One sixth of the 864 history books are new. How many history books are new?

3. Jean decided to read all 1,566 storybooks. If she reads 6 books a week, how many weeks will it take? (Do you think she will do it?)

4. To have 3,000 storybooks in the library, instead of the 1,566 we now have, how many books will be needed?

5. We have earned $96.48 for new books. The girls earned $57.94. How much did the boys earn?

6. If we spend $37.65 of the $96.48 for history books, how much money will we have for other books?

Now solve all six problems. Write your work.

What Process Should You Use?

Problems without numbers [O]

Tell what to do to solve Ex. 1 to 5.

If you know	how can you tell
1. the number of dogs in the Eskimo village and the number of dogs needed to pull a sled,	the number of sleds that all the dogs can pull?
2. the number of people who live in the village and how many of them are grown people,	how many children live in the village?
3. the number of children and the number that are girls,	how many boys there are?
4. how many fish were caught and how many men went fishing,	the number of fish in each man's share?
5. how many canoes there are and how many can ride in each,	how many people all the canoes will hold?

[W]

Write problems with numbers for Ex. 1 to 5 above. Use the numbers given below.

1. 156 and 6 2. 140 and 96 3. 44 and 18
4. 36 and 4 5. 21 and 3

More Facts in Multiplication and Division

Facts involving 9 [W]

1. Copy Ex. a to m from box **A**. Draw lines between examples that make pairs, as Ex. a and j. Now copy again Ex. a to m from box **A** and write the products.

A **Multiplication Facts**

For 9's	For 9
a. 4 × 9	**g.** 9 × 6
b. 6 × 9	**h.** 9 × 5
c. 7 × 9	**i.** 9 × 3
d. 8 × 9	**j.** 9 × 4
e. 3 × 9	**k.** 9 × 8
f. 5 × 9	**l.** 9 × 7
m. 9 × 9	

B **Division Facts**

Divisor 9	Quotient 9
a. 27 ÷ 9	**g.** 36 ÷ 4
b. 54 ÷ 9	**h.** 63 ÷ 7
c. 36 ÷ 9	**i.** 45 ÷ 5
d. 63 ÷ 9	**j.** 72 ÷ 8
e. 45 ÷ 9	**k.** 27 ÷ 3
f. 72 ÷ 9	**l.** 54 ÷ 6
m. 81 ÷ 9	

2. Now copy Ex. a to m from box **B** and show pairs. Then copy Ex. a to m again giving the quotients.

3. The only new M. fact in box **A** is $9 \times 9 = ?$ You know $8 \times 9 = 72$ and $72 + 9 = 81$, so $9 \times 9 = ?$

4. The only new D. fact in box **B** is $81 \div 9 = ?$ You know that $72 \div 9 = 8$ and that 81 contains 1 more 9 than 72, so $81 \div 9 = ?$

5. For each example in box **B**, show two other ways of writing the D. example and its quotient.

Write the whole story in M. and D. about

6. 7, 9, and 63.
7. 8, 9, and 72.
8. 9, 6, and 54.
9. 9, 9, and 81.

10. How many facts has the whole story for Ex. 9?

Multiplication Facts for 9's

9	9	9	9	9	9	9	9	9
×1	×2	×3	×4	×5	×6	×7	×8	×9
9	18	27	36	45	54	63	72	81

Multiplication Facts for 9

1	2	3	4	5	6	7	8	9
×9	×9	×9	×9	×9	×9	×9	×9	×9
9	18	27	36	45	54	63	72	81

Using the Multiplication Facts

[O]

Which products in rows 1 to 3 are wrong?

	a	b	c	d
1.	3 × 9 = 27	9 × 9 = 81	9 × 4 = 36	9 × 5 = 54
2.	9 × 5 = 56	9 × 6 = 72	8 × 9 = 40	6 × 9 = 54
3.	4 × 9 = 36	9 × 7 = 63	9 × 8 = 56	7 × 9 = 64

Practice in M. with carrying

Say the answers for the examples in rows 4 to 7.

4.	8 × 9 + 5	9 × 9 + 6	9 × 6 + 7	8 × 8 + 5
5.	6 × 8 + 5	6 × 9 + 4	7 × 8 + 4	6 × 9 + 5
6.	9 × 7 + 8	7 × 7 + 6	9 × 8 + 8	7 × 8 + 3
7.	3 × 9 + 2	9 × 6 + 8	7 × 6 + 5	9 × 5 + 6

[W]

Multiply. Check by multiplying again.

8.	4 × 39	9 × 26	5 × 95	9 × 37
9.	9 × 782	9 × 924	6 × 695	9 × 469

➤ **Extra Practice.** Work Set 46.

Division Facts, Divisor 9

1	2	3	4	5	6	7	8	9
$9\overline{)9}$	$9\overline{)18}$	$9\overline{)27}$	$9\overline{)36}$	$9\overline{)45}$	$9\overline{)54}$	$9\overline{)63}$	$9\overline{)72}$	$9\overline{)81}$

Division Facts, Quotient 9

9	9	9	9	9	9	9	9	9
$1\overline{)9}$	$2\overline{)18}$	$3\overline{)27}$	$4\overline{)36}$	$5\overline{)45}$	$6\overline{)54}$	$7\overline{)63}$	$8\overline{)72}$	$9\overline{)81}$

Using the Division Facts

Fraction facts [W]

1. Write out tables of fraction facts to go with the division tables having divisor or quotient 9.

Uneven D. [O]

2. When dividing by 9 what table number do you use for 82, 83, 84, 85, 86, 87, 88, and 89?

Say the quotients with their remainders.

	a	b	c	d	e	f	g
3.	$9\overline{)58}$	$7\overline{)58}$	$6\overline{)45}$	$9\overline{)74}$	$7\overline{)57}$	$8\overline{)67}$	$9\overline{)41}$
4.	$9\overline{)83}$	$5\overline{)38}$	$9\overline{)48}$	$8\overline{)75}$	$7\overline{)51}$	$9\overline{)65}$	$8\overline{)34}$
5.	$8\overline{)59}$	$9\overline{)76}$	$5\overline{)43}$	$9\overline{)89}$	$6\overline{)40}$	$9\overline{)30}$	$9\overline{)59}$

➊ **Extra Practice.** Work Set 47.

Written Practice

M. and D.

	a	b	c	d
1. Multiply by 9:	$1.86	$9.74	$6.23	1,095
2. Divide by 8:	$5.68	869	$55.60	9,784
3. Divide by 9:	720	$34.12	961	903

How Would You Find Out?

Using M. and D. facts [O]

1. Tom's father gives hay to 9 cows each evening. Is that the same as giving hay to 63 cows in one week?

2. It takes him about 8 minutes to milk each of the 9 cows. Can he finish in 1 hour?

3. Tom may keep $\frac{1}{5}$ of the 45 quarts of berries he picks. Should he keep 12 quarts?

4. I have 72¢ and tell you that you can have $\frac{1}{8}$ or $\frac{1}{9}$ of it. Which would be more? Why?

5. Which is more, 7 stamps or $\frac{1}{6}$ of 54 stamps?

6. Can you walk on $\frac{1}{4}$ of a sidewalk 36 inches wide?

7. Can 8 boys divide 72 marbles equally?

8. You start putting 9 pieces of candy in each bag. Will you need 10 bags for 85 pieces? Why?

9. Which will make a longer jump rope, $\frac{1}{5}$ of a rope 40 feet long or $\frac{1}{6}$ of a rope 54 feet long?

10. Tom weighs 72 pounds and Bob weighs $\frac{1}{8}$ more. How many pounds heavier is Bob than Tom?

Test Yourself 17

[W]

Write just the products on folded paper.

	a	b	c	d	e	f	g	h	i
1.	4 ×8	6 ×9	7 ×5	4 ×9	8 ×6	4 ×5	9 ×5	7 ×8	8 ×3
2.	9 ×4	4 ×3	6 ×7	8 ×8	4 ×4	5 ×9	4 ×6	5 ×7	8 ×9
3.	8 ×7	9 ×2	5 ×6	9 ×9	6 ×3	8 ×4	9 ×7	6 ×6	5 ×8
4.	7 ×7	3 ×9	7 ×6	3 ×8	9 ×6	7 ×4	2 ×9	6 ×5	4 ×7
5.	6 ×8	6 ×4	7 ×9	8 ×5	7 ×3	9 ×8	3 ×6	5 ×4	9 ×3

Test Yourself 18

[W]

Copy these examples. Find and check all answers.

1. $7.13 −6.78

2. $80.00 −8.15

3. $10.78 ×9

4. 4)$3.64

5. 129 ×8

6. 921 −781

7. 6)$34.04

8. $8.09 ×5

9. 830 − 608

10. 5,875 + 2,605 + 973

11. $2.30 ÷ 5

12. 58 + 49 + 76 + 88 + 37

Helps in Problem-Solving

[O]

One way to help yourself when you solve problems is to tell the story in your own words and give the question asked. Do this for problems 1 and 2.

1. Mr. Fox started a meat market in 1899. He sold it to Mr. White in 1952. How old was the market then?

2. Mr. White works in his market about 50 hours a week. His helper works 8 hours a day, 5 days a week. His helper works how many hours a week?

Another help in solving problems is to find what numbers you have to work with. Tell this for each of problems 3 and 4.

3. Mr. White made $3,700 in one year and $4,850 in another. How much more did he make in the second year than he made in the first?

4. Mr. White bought some chickens and paid $63.80 for them. He sold them all for $91.75. How much more did he get for the chickens than he paid for them?

About the most important thing to do when you are going to solve a problem is to decide what process to use. *Think*, "Do I want to put groups together or take them apart?" Tell what to think for problems 5 and 6.

5. Mr. White paid $57.60 for 9 turkeys. He sold them for $83.88. If he received the same price for each turkey, how much was that?

6. At the market Mrs. Still bought 3 pounds of steak at $0.89 a pound and 4 pounds of fish at 37¢ a pound. How much did the steak cost her?

Some of problems 1 to 6 contain extra numbers. For each problem, tell the numbers you do not need to use in finding the answer.

[W]

After you have solved a problem another good helper is to test your answer. To do this, estimate the answer and decide if it is sensible. Compare your estimate and the answer you found. For Ex. 7 and 8, solve each problem. Then estimate to test your answer.

7. A 4-pound pot roast cost Mrs. Hill $3.56, a 5-pound chicken cost her $2.10. What was the price of the roast per pound?

8. At his fruit counter Mr. White sold 175 crates of berries one week and 218 crates the next week. Each crate held 24 quarts. How many crates of berries did he sell in the two weeks?

Now solve problems 1 to 6. Is your answer sensible? Test it by estimating. Then check your work.

To Keep in Practice

Finding n [O]

Tell the value of **n** in each example.

	a	b	c
1.	$3 \times n = 27$	$n - 7 = 56$	$72 = n \times 9$
2.	$54 \div n = 6$	$63 = n \times 7$	$54 = 63 - n$
3.	$n \times 8 = 64$	$n + 6 = 10$	$54 = n \times 6$
4.	$64 = 72 - n$	$81 \div n = 9$	$42 = 7 \times n$
5.	$n + 50 = 56$	$n + 72 = 81$	$n = 42 - 7$
6.	$8 \times n = 72$	$48 \div n = 8$	$9 \times 7 = n$
7.	$56 \div n = 7$	$48 - n = 40$	$56 = n \times 7$
8.	$n = 48 + 8$	$n = 36 \div 9$	$42 + n = 50$

A., S., M., and D. [W]

Copy, and work. Check all answers.

	a	b	c	d
9.	$7\overline{)\$68.65}$	8 × $8.09	$4.56 0.97 +35.09	2,435 1,708 +4,298
10.	$59.76 −13.56	$53.07 +9.98		
11.	7,000 −953	8,161 −2,857	53 75 68 70 +89	42 125 90 59 +4,207
12.	$9\overline{)9{,}585}$	$8\overline{)3{,}335}$		
13.	$3.95 ×8	$6.48 ×9		
14.	497 × 9	$4\overline{)2{,}007}$	7 × $13.07	$5\overline{)903}$

Reading Five-Place and Six-Place Numbers

[O]

Joe read the following in the morning paper: "Last year 97,415 people went to the Henry County Fair. This year the number should be over 125,000."

1. The number 97,415 is a 5-place number. Why?

The 9 is in fifth place, which is ten-thousand's place. So 9 means 9 ten thousands or 90,000 (ninety thousand).

97,415 is read "ninety-seven thousand four hundred fifteen."

2. The number 125,000 is a 6-place number. Why?

The 1 is in sixth, or hundred-thousand's, place. So the 1 means 1 hundred thousand, or 100,000.

125,000 is read "one hundred twenty-five thousand."

306,083 is three hundred six thousand eighty-three.
70,915 is seventy thousand nine hundred fifteen.

Read these numbers:

3. 97,642　4. 560,204　5. 30,567　6. 807,294

More about Large Numbers

Reading by periods [O]

1. In the numbers in the box, a comma is between the third place and the _?_ place. What does it do?

2. For 5,697 we can *think*, "_?_ thousands, 697 ones."

5,697
35,257
835,092

3. For 35,257 we can *think*,
35 thousands, 257 _?_.

4. For 835,092 we can *think*,
835 _?_, 92 ones.

5. In the box, the 5, the 35, and the 835 tell how many thousands. We say that they are in thousand's period. The 697, the 257, and the 92 tell how many ones. We say that they are in _?_ period.

6. In the chart below, read the number for Ex. a. Tell how many hundred thousands, then tell how many ten thousands, and so on. Read the figures in each period.

7. Read Ex. b and tell how many are in each place.

8. Do the same for Ex. c; for Ex. d.

Period ⟶	Thousand's Period				One's Period		
Place Value ⟶	Hundred thousand	Ten thousand	Thousand		Hundred	Ten	One
a. 834,695	8	3	4	,	6	9	5
b. 60,752		6	0	,	7	5	2
c. 5,689			5	,	6	8	9
d. 901,075	9	0	1	,	0	7	5

Make a chart like the one on page 260. Then write in your chart the numbers in Ex. 9 to 18 to show their periods and the place values of their figures.

9. 19,426 **10.** 157,862 **11.** 7,248 **12.** 641,536

13. Eighteen thousand two hundred sixty-six.
14. Two hundred two thousand thirteen.
15. Six hundred ninety thousand two hundred five.
16. Ninety-one thousand eighteen.
17. Five thousand eight hundred forty-nine.
18. Four hundred thirteen thousand sixty-two.

19. Write in words the numbers in Ex. 9 to 12.

20. Write in figures the numbers for Ex. 13 to 18.

21. Write a 6-place number with 6 in thousand's place, 9 in hundred-thousand's place, and 0 in each of the other places.

22. Write a 5-place number in which 9 is in ten-thousand's place, 5 is in hundred's place, and 7 is in each of the other places.

23. In 572,436, the figure 5 is in _?_ place, 2 is in _?_ place, and 3 is in _?_ place.

24. In 608,413, the figure 6 is in _?_ place, 4 is in _?_ place, and 0 is in _?_ place.

25. In 79,542, the figure 7 is in _?_ place, 9 is in _?_ place, and the figures, 542, are in _?_ period.

26. On your paper write any number in which there are three figures in thousand's period.

Estimating Quotients

[O]

1. In the parade 6 children march side by side in each row. About how many rows will 298 children make?

To find *about how many* rows there are, you can estimate. You need not get the exact quotient.

298 = almost 30 tens. 30 tens ÷ 6 = 5 tens, or 50.
The 298 children will make about 50 rows.

2. Will $2.03 buy as many as 48 pencils at 5¢ each?

Think, "203 (in place of $2.03) = about 20 tens and 20 tens ÷ 5 = 4 tens, or 40."

$2.03 will pay for about 40 pencils at 5¢ each.

3. Which is larger, 61 or the quotient of 352 ÷ 7?
352 = about 35 tens. 35 tens ÷ 7 = 5 tens, or 50.

[W]

Copy Ex. 4a. Which is larger, 93 or the quotient of 363 ÷ 6? Draw a line under the one you estimate to be larger. Do the same for the other examples.

	a	b	c
4.	93 or 363 ÷ 6	56 or 486 ÷ 8	68 or 241 ÷ 4
5.	36 or 450 ÷ 9	86 or 278 ÷ 3	59 or 230 ÷ 6
6.	87 or 310 ÷ 4	68 or 144 ÷ 2	48 or 300 ÷ 9
7.	63 or 399 ÷ 7	83 or 562 ÷ 6	26 or 217 ÷ 7
8.	72 or 483 ÷ 6	40 or 280 ÷ 9	31 or 286 ÷ 7
9.	83 or 760 ÷ 8	21 or 311 ÷ 7	54 or 203 ÷ 5

Now find exact quotients to see if your estimates are good. Estimates, you know, usually are not exact.

Is Your Answer Reasonable?

Estimating in M. and D. [O]

Is 345 a sensible product for 5 × 69? Yes, 69 is almost 7 tens, and 5 × 7 tens = 35 tens, or 350.

Is 28 a sensible answer for 624 ÷ 3? No, 624 has about 60 tens. 60 tens ÷ 3 = about 20 tens, or 200.

When you have solved a problem, it is a good idea to see if your answer is reasonable (sensible).

Read problems 1 to 6 and estimate to find which one of the numbers given is the most reasonable answer.

1. A bushel of oats weighs 34 pounds. So how many pounds will 9 bushels of oats weigh? 27 200 270

2. If 8 books make a load, how many trips will it take to move 504 library books? 60 200 18

3. Each apple tree gives about 7 bushels. Then about how many bushels should 78 trees give? 50 560 3,000

4. A box holds 6 toys. How many boxes will hold 3,720 toys? (3,720 is about 3,700.) 5,000 600 300

5. At $1.07 each, how much will 7 flashlights cost? ($1.07 is a little more than $1.)

$49 $14 $7

6. If a dress costs $2.98, how much will 6 dresses like it cost?

$10 $18 $15

[W]

Now solve the problems for exact answers.

Multiplying by a Ten

1-place multiplicand [O]

1. Jean's mother made these mittens. How many in all did she make? Count them by 2's. Ten 2's = ?

★ ★ ★ ★ ★ ★ ★ ★ ★ ★
★ ★ ★ ★ ★ ★ ★ ★ ★ ★

2. Count the stars by 10's. How many? Two 10's = ?

3. Now count the stars by columns. Ten 2's = ?

4. Two 10's = 20, so ten 2's = ? 10 × 2 = ?

Say Ex. 5 and 6 with their answers.

5. Four 10's = 40, so ten 4's = ? 10 × 4 = ?
6. Eight 10's = 80, so ten 8's = ? 10 × 8 = ?

7. Jean's grandmother put 3 bells on each of 10 hats she made. How many bells did she use in all?

The box shows 3 ways to write the multiplication. *Think*, "1 ten times 3 = 3 tens, or 30." Why does the 3 in the product mean "3 tens"?

ten 3's = 30
10 × 3 = 30

$$\begin{array}{r} 3 \\ \times 10 \\ \hline 30 \end{array}$$

Say the products for the examples in row 8. For Ex. 8a say, "1 ten times 6 = 6 tens, or 60."

	a	b	c	d	e	f	g	h
8.	6	8	2	3	5	4	7	9
	×10	×10	×10	×10	×10	×10	×10	×10

There is a quick way to write the product of 10 times a number. Write the number and make it mean tens by writing a 0 after it.

Multiplying by More than 1 Ten

1-place multiplicand [O]

1. Sue folded her paper and cut out 30 pairs of paper dolls. How many paper dolls in all did she cut out?

Thirty 2's = 30 × 2, or 3 _?_ times 2.

Since 3 tens × 2 = 6 tens, Sue cut out _?_ dolls.

You can write the multiplication for 30 × 2 as in the box. You read it, "3 tens times 2 equals 6 tens, or 60." How do you know that the 6 in the product means 6 tens?

$$\boxed{\begin{array}{r} 2 \\ \times 30 \\ \hline 60 \end{array}}$$

Say the answers for Ex. 2 to 9.

2. 4 tens × 2 = _?_ so 40 × 2 = ?
3. 2 tens × 3 = _?_ so 20 × 3 = ?
4. 4 tens × 4 = _?_ so 40 × 4 = ?
5. 3 tens × 5 = _?_ so 30 × 5 = ?
6. 20 × 2 = ?
7. 30 × 3 = ?
8. 60 × 6 = ?
9. 50 × 4 = ?

[W]

On your paper write products for rows 10 and 11. For Ex. 10a *think*, "4 tens times 5 equals 20 tens, or 200."

	a	b	c	d	e	f	g	h
10.	$\begin{array}{r} 5 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 90 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 50 \\ \hline \end{array}$
11.	$\begin{array}{r} 3 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 90 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 90 \\ \hline \end{array}$

Multiplying Larger Numbers by More than 1 Ten

2-place multiplicands [O]

1. In box A, you multiply by 2 ones, so the answer means _?_ ones.

2. In B, *think*, "2 tens times 24 = 48 tens, or _?_" The zero in the product holds one's place and makes 48 mean "48 _?_."

A

$$\begin{array}{r} 24 \\ \times 2 \\ \hline 48 \end{array}$$

B

$$\begin{array}{r} 24 \\ \times 20 \\ \hline 480 \end{array}$$

Explain the work in these pairs of examples:

3. $\begin{array}{r} 32 \\ \times 3 \\ \hline 96 \end{array}$ $\begin{array}{r} 32 \\ \times 30 \\ \hline 960 \end{array}$

4. $\begin{array}{r} 17 \\ \times 2 \\ \hline 34 \end{array}$ $\begin{array}{r} 17 \\ \times 20 \\ \hline 340 \end{array}$

5. $\begin{array}{r} 23 \\ \times 4 \\ \hline 92 \end{array}$ $\begin{array}{r} 23 \\ \times 40 \\ \hline 920 \end{array}$

You multiply by tens just as you multiply by ones. Write 0 in one's place in the product to show that the product means tens.

Explain how the products were found in Ex. 6 to 10. Be sure to tell about writing "0" to hold one's place in the product. Then tell how we multiply by tens just as we multiply by ones.

6. $\begin{array}{r} 13 \\ \times 20 \\ \hline 260 \end{array}$

7. $\begin{array}{r} 37 \\ \times 30 \\ \hline 1{,}110 \end{array}$

8. $\begin{array}{r} 96 \\ \times 40 \\ \hline 3{,}840 \end{array}$

9. $\begin{array}{r} 87 \\ \times 50 \\ \hline 4{,}350 \end{array}$

10. $\begin{array}{r} 75 \\ \times 40 \\ \hline 3{,}000 \end{array}$

[W]

Copy these examples and find the products:

	a	b	c	d	e	f	g
11.	$\begin{array}{r} 24 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 32 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 43 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 22 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 42 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 50 \\ \hline \end{array}$
12.	$\begin{array}{r} 27 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 64 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 85 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 68 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 76 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 99 \\ \times 30 \\ \hline \end{array}$

Multiplying by Any 2-Place Number

2-place multiplicands [O]

1. Our hall has 34 rows of seats with 21 seats in each row. How many seats are there in all?

You are to find thirty-four 21's, or 34 × 21.

It is easy to do the multiplication in steps.

34 = 3 tens and 4 ones. You can multiply first by the ones, then by the tens, and then add the products.

$$\begin{array}{rcrl} 4 \times 21 & = & 84 & \text{(seats in 4 rows)} \\ 30 \times 21 & = & \underline{630} & \text{(seats in 30 rows)} \\ & & 714 & \text{(seats in 34 rows)} \end{array}$$

In the box is another way to write the steps. Explain steps 1 and 2. Tell how to finish step 3.

	Step 1 **M. by ones**	**Step 2** **M. by tens**
21	21	21
×34	×4	×30
84 ←	← 84	630
630 ←		← 630
??? ← **Step 3**	**Adding the products**	

2. How many seats are there in a hall which has 24 rows with 32 seats in each row?

On the board, work steps 1, 2, and 3, as in the box.

When you find the answer for step 1, copy it under the example. Next, find and copy the answer for step 2. What should you do for step 3?

When you multiply by a 2-place number, first multiply by the ones, then by the tens, and then add the two products.

Partial Products

M. of two 2-place numbers [O]

The work in the box shows us how to write the multiplication of two 2-place numbers without making three examples.

$$\begin{array}{r} 3\ 7 \\ \times 2\ 5 \\ \hline 1\ 8\ 5 \\ 7\ 4\ 0 \\ \hline 9\ 2\ 5 \end{array}$$

1. First multiply by the ones part of the multiplier. Explain what is done to get 185. 185 is called the first partial product. Why?

HELPER: Is the word "part" in "partial"?

2. To get the second partial product, 740, multiply by the 2 tens. You are multiplying by tens, so this partial product is _?_ tens.

You can write 0 in one's place to be sure that the second partial product is written as tens. Then *think*, "Two 7's are 14." Write 4 in ten's place and carry 1. Then *think*, "Two 3's are 6, and 1 carried are 7." Write 7 in hundred's place.

3. Then add the two partial products, 185 and 740, to get the product, _?_.

[W]

Copy each example and multiply as in the box.

	a	b	c	d	e	f	g	h
4.	56 ×17	21 ×49	74 ×13	21 ×13	15 ×42	14 ×27	16 ×55	24 ×37
5.	14 ×76	46 ×24	27 ×38	33 ×37	49 ×29	28 ×17	19 ×48	86 ×19
6.	49 ×47	42 ×28	17 ×59	15 ×67	58 ×16	29 ×34	37 ×26	28 ×39

Extra Practice. Work Set 48.

Finding and Checking Larger Products

M. of two 2-place numbers [O]

A	B Check
23	84
×84	×23
92	252
1 840	1 680
1,932	1,932

1. Study the work in the boxes. In box **A,** what are the partial products?

The second partial product is a four-place number. Read it as tens.

2. Box **B** shows how to check the multiplication in box **A.** How is the checking done? Explain why the work in box **B** is a check for the work in box **A.**

C	D Check
56	87
×87	×56
392	522
4 480	4 350
4,872	4,872

3. Explain the work in boxes **C** and **D.**

4. Say the examples you would use to check these:

a. 37 × 48 = 1,776

b. 79 × 53 = 4,187

[W]

Find these products as in boxes **A** and **C.** Check them as in boxes **B** and **D.**

	a	b	c	d	e
5. Multiply by 62:	46	29	73	58	96
6. Multiply by 58:	27	96	38	17	48
7. Multiply by 47:	36	54	75	49	82
8. Multiply by 93:	59	36	82	47	87
9. Multiply by 79:	65	42	91	73	69
10. Multiply by 87:	89	76	38	65	97

▶ **Extra Practice.** Work Set 49.

Multiplying Money Numbers

[O]

A

$$\begin{array}{r} \$0.35 \\ \times 24 \\ \hline 1\ 40 \\ 7\ 00 \\ \hline \$8.40 \end{array}$$

B

$$\begin{array}{r} \$0.23 \\ \times 48 \\ \hline 1\ 84 \\ 9\ 20 \\ \hline \$11.04 \end{array}$$

1. The Scout leader bought 24 tickets for the boys at $0.35 each. Find the cost.

Study the work in box **A**. How many places do cents fill in the product?

2. At 23¢ each, 4 dozen of the Scout song books cost how much? (4 dozen = 48)

In problems like Ex. 2, first make the money number the multiplicand.

Think, "If 1 song book cost 23¢, then 48 song books cost forty-eight 23's."

It is better to write 23¢ as $0.23, as in box **B**. Explain the work in box **B**.

[W]

Copy and work the examples in rows 3 to 7.

	a	**b**	**c**
3. Multiply by 34:	$0.75	$0.64	$0.25
4. Multiply by 78:	$0.23	$0.65	$0.50
5. Multiply by 29:	$0.67	$0.90	$0.75
6. Multiply by 56:	$0.46	$0.95	$0.74
7. Multiply by 98:	$0.31	$0.68	$0.29

Multiplying Small Money Numbers

[W]

Find the cost of the things in Ex. 1 to 20.

For Ex. 1 you first *think*, "The stamps cost forty-two 3's, or 42 × 3¢" (box **A**). But in multiplying, the factors can be changed about. (See box **B**.)

Multiplying as in box **B** is easier because the multiplier has fewer figures. Write your answer as a money number.

A
3¢
×42

B
42
×3
126,
or 126¢,
or $1.26

1. 42 stamps at 3¢
2. 215 chicks at 4¢
3. 518 tops at 5¢
4. 187 roses at 9¢
5. 312 apples at 6¢
6. 394 grapefruit at 8¢
7. 96 doll hats at 7¢
8. 478 oranges at 6¢
9. 306 pencils at 3¢
10. 115 candy bars at 6¢

11. At 39¢ each, 57 books will cost $_?_.
12. At 25¢ each, 36 pencil boxes will cost $_?_.
13. At 4¢ each, 120 toy camels will cost $_?_.
14. At $0.99 each, 45 pens will cost $_?_.
15. At 68¢ each, 75 books will cost $_?_.
16. At 2¢ each, 80 fishhooks will cost $_?_.
17. At $0.75 an hour, 48 hours of work cost $_?_.
18. At $0.50 each, 65 tickets will cost $_?_.
19. At 6¢ each, 250 tablets will cost $_?_.
20. At 8¢ each, 175 streetcar rides will cost $_?_.

Reading Problems Carefully

Data missing **[O]**

Which problems can be solved? Which cannot be solved? Explain.

1. It took 7 large buses of the same size to take all the children in our school to the picnic. How many children went to the picnic?

2. Seventeen of the boys in the school could not go. How many boys went to the picnic?

3. One fifth of the children at the picnic were from our grade. How many children was that?

4. Four teams of 15 children each took part in a contest. How many children were in the contest?

5. 32 children danced a square dance. If it took 8 children for each square, how many squares were there?

6. In all, 48 of the sandwiches were left. How many sandwiches did we eat?

Practice in M. of 2-place numbers **[W]**

Turn to page 195. Copy the examples in rows 10 to 13. Multiply this time. Check your work.

So You Won't Forget!

[O]

Answer with "Yes" or "No."

1. Where you live, are there nights in summer when the temperature is 15°?

2. Is 80 a good estimate for $32 + 22$?

3. Must every six-place number have a figure in hundred-thousand's place?

4. Is $\frac{1}{6}$ of 12 more than $\frac{1}{3}$ of 9?

5. Is 500 more than 62×7?

6. Does every whole thing have 8 eighths?

7. Is 75 less than $815 \div 9$?

8. Does "thousand's place" mean the same as "thousand's period"?

9. Is 164,932 the smallest number you can write with the figures in that number?

Oral Practice

Estimating in A., S., M., D.

Tell which answer you think is the best estimate.

	a				b			
1.	$48 + 152 =$	60	200	150	$122 + 51 =$	170	30	290
2.	$327 \div 8 =$	40	70	220	$7 \times 49 =$	160	80	350
3.	$188 - 31 =$	90	220	160	$8 \times 72 =$	560	320	80
4.	$620 \div 9 =$	90	70	340	$491 \div 6 =$	500	80	310
5.	$98 + 49 =$	50	150	110	$152 - 79 =$	230	20	70
6.	$500 \div 7 =$	70	30	90	$242 + 47 =$	400	180	290

Do You Make Mistakes?

Diagnostic Test 7

Copy, and work.

	a	b	c	Study Pages	Practice Sets
1.	20 × 36	60 × 25	80 × 47	264–266	
2.	23 × 36	41 × 24	16 × 33	267–268	48
3.	Check your work for these: 49 × 68	75 × 38	83 × 97	269	46, 49
4.	$0.78 ×39	$0.57 ×67	$0.09 ×45	270, 271	

Test Yourself 19

[W]

Write the quotients on folded paper.

	a	b	c	d	e	f	g
1.	6)30	9)36	4)28	9)63	6)48	8)32	4)36
2.	9)54	7)42	5)45	2)18	5)40	9)81	8)72
3.	7)35	9)72	6)42	7)56	8)48	6)54	7)28
4.	7)63	8)40	3)27	9)45	6)36	4)32	7)49
5.	8)64	3)21	4)24	8)56	5)35	3)24	9)18

Can You Solve Problems?

Problem Test 7

Write your work for Ex. 1 to 8. Work carefully.

1. Fourteen boys each passed out 75 handbills about the school swimming contest at the beach. In all, how many handbills did the boys pass out?

2. The ticket sale brought in $99.50. Last year the sale amounted to $98.25, or how much less?

3. One relay race was between two swimming teams. Each of the 6 boys in a relay team swam 45 feet. How many feet in all did each team swim?

4. Ribbon badges for the winners cost 9¢ each. How much did 21 badges cost?

5. In all, 216 bottles of pop were sold. That was 9 boxes. Each box held how many bottles?

6. Forty-eight of those 216 bottles were orange pop. The other _?_ bottles were different.

7. One group of girls sold popcorn and took in $9.60. One third of this was profit. How much profit did the class make?

8. 3 girls sold 59 bags, 68 bags, and 65 bags of popcorn. How many bags was that in all?

Are your answers sensible? Did you check your work?

Test Yourself 20

[W]

Copy and work.

	a	b	c
1.	6,363 ÷ 7	47 × 46	$75.16 – $24.89
2.	82 × $0.57	4,018 ÷ 2	577 + 2,684 + 5,090
3.	59 × 31	6 × $6.07	$5.76 – $5.07
4.	5,428 ÷ 8	9,362 – 875	92 × $0.43
5.	$46.17 ÷ 7	34 × 65	79 + 52 + 89 + 84
6.	78 × 49	62 × $0.09	6,000 – 3,217

Do You Understand?

Test of Information and Meaning 7

1. Write the largest six-place number you can with 8 in ten-thousand's place.

2. Write the smallest five-place number you can with 9 in ten's place and 8 in thousand's place.

3. Make a drawing to show that $\frac{8}{4}$ squares are the same as 2 whole squares.

4. Make a drawing to show that $\frac{1}{2}$ of a thing may be smaller than $\frac{1}{2}$ of something else.

5. Write "60,000." Then write the next six numbers you must say or think in counting by 10,000's.

6. Write an example with a two-place multiplier and a two-place multiplicand.

7. Write in figures: six hundred three thousand seven hundred two.

Write the missing words or numbers on your paper.

8. The doughnuts below are divided into _?_.

9. What fraction shows that all 3 doughnuts were cut into thirds?

10. The fraction for Ex. 9 is equal to a whole number. Write the whole number.

11. In finding the product for 78 × 9¢, the number to use as the multiplier is _?_.

12. To multiply a number by 10, you need only to write the number with _?_ after it.

13. In the example, 23 × 47, multiply 47 first by _?_ and then by _?_. What are these products called?

How Well Can You Figure?

Computation Test 7

Copy, and write your work.

	a	b	c	d
1.	$9\overline{)9{,}478}$	$5\overline{)\$40.45}$	$4\overline{)\$4.83}$	$3\overline{)3{,}242}$
2.	$0.48 ×27	$5.82 ×9	1,076 ×8	$0.19 ×37
3.	$47.39 −36.70	$72.80 −69.37	4,171 −1,869	$53.16 −49.46
4.	4,532 648 +3,079	2,452 3,075 +1,986	385 492 +763	624 813 +7,725

8

What Does Average Mean?

[O]

1. Joe is playing with 4 puppies, Sue with 5, and Bob with only 3. Who has the most puppies? the fewest?

2. Tell what to do so that each of the children will have the same number of puppies, or _?_.

By dividing the puppies into equal groups, you find the average of 4, 5, and 3 puppies.

3. How many puppies are there in all?

4. When there are 12 in all, another way to find how many in each of 3 equal parts is to find $\frac{1}{3}$ of 12. $12 \div 3 = ?$

In Ex. 3 and 4, to find the average
What did you do first with 4, 5, and 3?
Then what did you do?

5. Suppose the three children had 4, 6, and 5 puppies each. How would you find the average number then?

To find the average of several groups, you divide the total by the number of groups. This shows how many in each equal part of the total.

6. The 9 boys on Sam's ball team weigh a total of 810 pounds. How would you find the average weight?

That is, if each boy weighed the same, how would you find out how much this weight would be?

7. Jean's mother bought her 3 dresses and paid $13.95 for them. How would you find the average price?

That is, if each dress cost the same amount, how would you find out how much this price would be?

Finding the Average

Finding total first [O]

1. In 5 tries, Sam jumped 12 feet, 14 feet, 12 feet, 13 feet, and 14 feet. What was his average jump?

You find the average in this kind of problem by using the two steps shown:

Step 1:

First find the total of the 5 numbers.

$$\begin{array}{r} 12 \\ 14 \\ 12 \\ 13 \\ \underline{+\,14} \\ 65 \end{array}$$

Step 2:

Then find $\frac{1}{5}$ of the total.

$$\begin{array}{r} 13 \\ 5\overline{)65} \\ \underline{5} \\ 15 \\ \underline{15} \end{array}$$

The average is 13 feet. Did Sam jump 13 feet each time? If not, what does "average" mean?

Explain how to find the average in Ex. 2 and 3. Tell what you do in Step 1 and in Step 2.

2. Mary played the piano for 35 minutes one day, 55 minutes the next day, and 45 minutes the next. On the average, how long did she play the piano each day?

3. The three Smith boys are 55 inches, 58 inches, and 61 inches tall. What is the average?

For Ex. 4 to 10, write your work and mark both Step 1 and Step 2, as in the box for Ex. 1.

4. My marks in spelling for 6 months were 83, 80, 85, 79, 83, and 82. Find my average mark for that time.

5. In 5 days Joan's father drove 369 miles, 288 miles, 346 miles, 410 miles, and 297 miles. What was the average number of miles Joan's father drove each day?

6. Shoes for the 3 children in the Whalen family cost $5.65, $6.50, and $7.95. What was the average cost?

7. On 4 days last week, Mike picked 35 quarts, 37 quarts, 46 quarts, and 42 quarts of berries. On the average, how many quarts of berries did he pick a day?

8. In the last 5 years, Mr. Olds has used 13 tons, 14 tons, 10 tons, 13 tons, and 15 tons of coal. How many tons of coal has he used a year on the average?

Find the average of

9. 47, 66, 59, 73, 60.

10. 609, 876, 98, 249, 583.

Written Practice

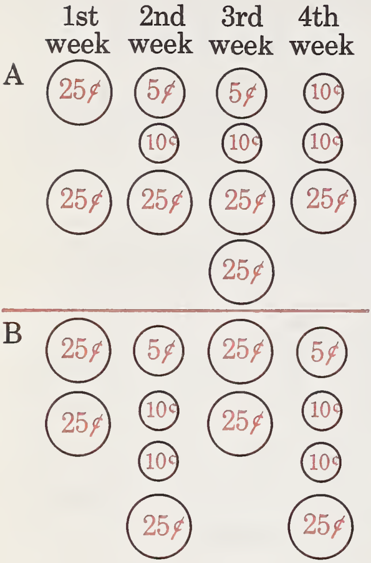
Practice in M. and D. [W]

	a	b	c
1. Multiply by 49:	$0.86	$0.45	$0.39
2. Multiply by 68:	$0.45	$0.76	$0.83
3. Multiply by 73:	$0.92	$0.65	88¢
4. Divide by 7:	876	$7.50	4,038
5. Divide by 9:	417	8,046	2,412
6. Divide by 8:	$8.27	$1.44	$8.60

When You Know the Average

Finding the total [O]

1. Picture A shows what Jane saved each week. Count to find how much it was in all.



Picture **B** shows that, on the average, Jane saved 50¢ a week. Explain how coins in picture A were moved to make picture **B.**

Instead of counting, you can multiply to find the total amount saved. 4 × _?_ = ?

[W]

Write the work for these:

2. A farmer sold 3 pigs averaging 325 pounds. What was their total weight?

3. Jane types an average of 26 words a minute. How many words can she type in 9 minutes?

4. My average mark on 7 tests is 89. What number did I divide by 7 to find the average?

5. For 6 weeks, Mrs. Fisk's weekly food bill averaged $18.75. How much did she spend for food in the 6 weeks?

6. On the average our car goes 16 miles on a gallon of gasoline. How far should it go on 35 gallons?

When you know the average of several groups, you can find the total by multiplying the average by the number of groups.

Working with Averages

[W]

On your paper, write the missing numbers.

1. Nine numbers average 78. Their total is _?_.

2. Six numbers average 347. Their total is _?_.

3. Four numbers total 196. The average is _?_.

4. Five numbers total 2,055. The average is _?_.

5. The average of 48, 79, 60, 87, 51 is _?_.

6. The average of 47, 892, 457, and 628 is _?_.

7. The average of 5 numbers is 37. Their total is _?_.

8. The total of 7 numbers is 4,214. The average is _?_.

What Is Wrong?

[O]

Which exercises are sensible? Which are not? Why?

1. A new bicycle tire should last 2,000 miles. Jack should get 4,000 miles from his 2 new tires.

2. Ed said that more than $\frac{7}{8}$ of the people in his town own their own airplanes.

3. Ruth said that dividing 12 cookies into 4 equal shares is the same as finding $\frac{1}{4}$ of 12 cookies.

4. Joe says that one should always multiply in problems that contain the word "each."

5. Sam had 2 books, Tom had 4, and Jack had 6. Their average number of books then was 12.

6. In 3 × 1,865 the number 1,865 is the product.

Two-step Problems

Problems other than finding average [**O**]

On pages 280 and 281, to find the average you had to add and then divide. Now you will learn how to solve other kinds of problems having two or more steps.

1. Joe milked 3 cows. They gave 8 quarts, 7 quarts, and 9 quarts of milk. What was the total?

2. How many gallons of milk did the 3 cows give? (Use the answer for Ex. 1.)

Ex. 1 and 2 were given as two problems. Here is a way the two problems might be written as one problem:

Joe milked 3 cows. They gave 8 quarts, 7 quarts, and 9 quarts of milk. How many gallons did they give?

This is a two-step problem. How was it made? Do you solve it as you solve Ex. 1 and 2 separately?

What hidden question in this two-step problem must you answer before you can answer the given question?

3. Jane paid 5¢ for a pencil and 12¢ for a notebook. How much did these two things cost her?

4. What was Jane's change from 25¢? (Use Ex. 3.)

Ex. 3 and 4 put together make this problem:

Jane paid 5¢ for a pencil and 12¢ for a tablet. What was her change from 25¢?

Is this a two-step problem? How was it made? Can you solve it as you solve Ex. 3 and 4 separately?

What hidden question is in the two-step problem?

Make a two-step problem for each pair of problems below. Each time tell what the hidden question is and then tell how to solve the new problem.

5. Molly painted 2 dozen place cards. How many cards in all did she paint?

6. Molly got 10¢ for each place card. How much money did she get for all the place cards she made?

7. Bill, Sam, and Mike went fishing. Bill and Sam each caught 5 fish. How many did they catch together?

8. If the 3 boys caught 17 fish in all, how many fish did Mike catch?

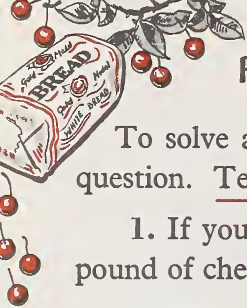
9. Two boards are 8 feet and 7 feet long. If they are put end to end, what will the total length be?

10. How many yards long will the two boards be?

11. Tom has a quarter and a dime. How much has he?

12. Tom needs 55¢ to buy a bat. How much more money must he get to be able to buy the bat?

Every two-step problem contains a hidden question. To find the answer to the problem question, first you answer the hidden question.



Finding the Hidden Question

2-step problems [O]

To solve a 2-step problem you must find the hidden question. Tell the hidden questions in Ex. 1 to 10.

1. If you buy 3 loaves of bread at 16¢ a loaf and a pound of cheese at 65¢, how much will your bill be?

2. Sam picked 45 quarts of cherries. His mother canned 36 quarts, and Sam sold the rest for 28¢ a quart. How much money did Sam take in?

3. Jim pasted $\frac{1}{2}$ of his 96 stamps in rows of 8. With these stamps, how many rows did he make?

4. Mother bought a 5-pound piece of meat at 78¢ a pound. How much was her change from $5.00?

5. Mrs. Lee bought a pattern and 4 yards of cloth at 69¢ a yard. Her bill was $3.01. How much did the pattern cost?

6. Mary wants to buy two books for $1.25 and $1.65. She has only $2.38, so how much more does she need?

7. At a sale, flags once costing $5.95 sell now at $4.65. If the school buys 4 flags, how much will they save?

8. At 60¢ a peck, 6 bushels of potatoes cost -?-.

9. Four watermelons weighed 35 pounds, 51 pounds, 48 pounds, and 42 pounds. Find the average weight.

10. For opening day, a store owner bought 25 dozen red roses, 23 dozen yellow roses, and 15 dozen white roses. To how many people could he give a rose?

[W]

Now go back and solve problems 1 to 10.

Oral Practice

Estimate these answers. In Ex. 1a, think of 21 as 20 (2 tens). In Ex. 2a, think of 138 as 140 (14 tens).

	a	b	c	d
1.	8×21	39×6	$239 \div 8$	$39 + 41$
2.	$138 \div 7$	$58 + 28$	8×51	$304 \div 6$
3.	$72 - 49$	$69 - 51$	62×6	78×8
4.	$32 + 41$	$358 \div 9$	$81 - 39$	$453 \div 9$
5.	4×82	$271 \div 3$	$638 \div 8$	6×69

Tell the value of **n** in each of these examples:

	a	b	c
6.	$n \div 9 = 9$	$42 \div n = 6$	49 = n times 7
7.	$n - 9 = 63$	$28 = n \times 7$	$n - 6 = 72$
8.	$n \div 8 = 7$	$7 = 63 \div n$	40 minus n = 8
9.	$72 \div n = 8$	$38 = n - 7$	n = 48 plus 6
10.	$8 \times n = 56$	$n \div 6 = 8$	6's in 54 = n
11.	$6 = 48 \div n$	$n - 6 = 30$	64 = n times 8

Written Practice

Copy and work the examples in rows 1 to 5.

	a	b	c
1.	29×78	$1{,}848 \div 4$	$\$4.59 \div 3$
2.	$162 \div 8$	35×29	$4{,}168 - 2{,}908$
3.	$687 \div 6$	$\$3.06 \times 9$	$\$15.97 + \$60.75$
4.	$3{,}016 \div 5$	$69 \times \$0.89$	$1{,}301 - 922$
5.	$1{,}820 \div 6$	$57 \times \$0.86$	$\$45.72 - \$44.91$

Shorter Partial Products

[O]

Our postman walks 13 miles a day. In 24 days, how far does he walk?

Boxes **A** and **B.** In both examples, the second partial product is 26 tens. How is the way it is written in box **B** different from the way in box **A**?

A	B
Tens Ones	
1 3	13
×2 4	×24
5 2	52
2 6 0	26
3 1 2	312

1. In box **B**, how do we know that the 6 means "6 tens"?

2. Why is 6 in the same column as the multiplier figure 2?

Boxes **C** and **D.** Which is the shorter way to write the work?

C	D
38	38
×24	×24
152	152
760	76
912	912

3. Why is the 2 of 152 under the one's figure of the multiplier?

4. In box **D**, the right-hand figure of 76, the second partial product, is under 2, the ten's figure of the multiplier. Explain.

5. Does the partial product, 76, mean "76 ones" or "76 tens"?

E	F
35	35
×48	×48
280	280
1 400	1 40
1,680	1,680

6. Explain about the work in boxes **E** and **F.**

[W]

Copy, and multiply. Write the second partial products the short way. Check by doing each example again.

	a	b	c	d
7.	69 × 26	45 × 40	25 × 24	37 × 23
8.	38 × 77	35 × 78	18 × 62	38 × 69
9.	19 × 94	26 × 88	74 × 56	29 × 96
10.	46 × 46	92 × 83	86 × 49	56 × 65
11.	47 × 62	65 × 97	93 × 86	81 × 27

The right-hand figure of each partial product goes in the same column as the figure you multiply by.

When multiplying by the ten's figure, put the right-hand figure of that partial product in ten's place.

No Paper! No Pencil!

A., S., M. [O]

Try to say the answers by working "in your head."

	a	b	c	d	e	f	g	h
1.	50 −45	15 ×3	36 +45	52 −45	68 −62	40 ×4	37 +34	14 ×2
2.	61 −56	28 +24	53 −49	14 ×4	41 −36	15 ×5	80 −72	45 −36
3.	34 +25	53 −48	18 ×3	76 −64	30 +59	89 −81	17 ×2	37 +15

Test Yourself 21

[W]

Copy and work these examples:

	a	b	c	d
1.	$\begin{array}{r} 908 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \$71.46 \\ -29.39 \\ \hline \end{array}$	$\begin{array}{r} 1{,}865 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} \$0.83 \\ \times 26 \\ \hline \end{array}$
2.	$\begin{array}{r} \$0.97 \\ \times 58 \\ \hline \end{array}$	$\begin{array}{r} 7{,}113 \\ -2{,}698 \\ \hline \end{array}$	$8\overline{)5{,}003}$	$5\overline{)9{,}203}$
3.	$9\overline{)7{,}277}$	$3\overline{)815}$	$4\overline{)\$3.85}$	$2\overline{)\$97.58}$
4.	$\begin{array}{r} 16 \\ 8 \\ 50 \\ +89 \\ \hline \end{array}$	$\begin{array}{r} 922 \\ 973 \\ 55 \\ +300 \\ \hline \end{array}$	$\begin{array}{r} 248 \\ 87 \\ 67 \\ +709 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ 70 \\ 387 \\ +962 \\ \hline \end{array}$

Right or Wrong? Why?

[O]

Are these exercises sensible? Why or why not?

1. Tom found that the average weight of the children in his fourth-grade class was 196 pounds.

2. Mike said that he could ride his bicycle half as fast as his father's new automobile can go.

3. Joe said that a pint of paint on the floor is more than a pint of paint in a can.

4. 8 peck bags will hold 2 bushels of potatoes.

5. Ruth will spend the 31 days of August visiting her grandmother on the farm.

6. Jack thought that $7 \times 89 =$ about 350.

Can You Solve These Problems?

Problems with missing data [O]

Which problems can you not solve because some number is missing? For each of these, tell a good number to use.

1. Tony delivers papers to some store customers and to 160 house customers. He usually sells 15 extra papers each day. How many papers does he usually sell a day?

2. In a week, how many papers in all does Tony deliver to the homes and stores?

3. It takes Tony 15 minutes longer to deliver all his papers on Saturday than on other days. How long does it take on Saturday?

4. The Saturday paper usually has 3 times as many sheets as the paper on other weekdays. How many sheets does the paper have on other weekdays?

5. One day, 4 of Tony's friends delivered the 160 papers to the house customers. Each friend delivered the same number. How many papers did each deliver?

6. Tony earns about $1.05 a day for delivering papers. In a 6-day week about how much does he earn?

7. If Tony saves $5.00 a week for 3 weeks, can he buy the baseball suit he wants?

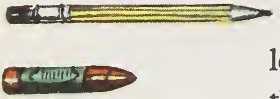
8. If Tony gets 35 new magazine customers, how many magazine customers will he have in all?

9. Five of Tony's evening customers stopped having the paper delivered. Then how many evening customers did Tony have?

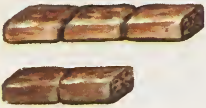
Comparing Sizes with a Fraction

Objects or groups [O]

You have used fractions to name one or more equal parts of a whole or of a group. You can also use fractions to compare the sizes of things or groups of things.



1. We say that Jack's crayon is $\frac{1}{2}$ as long as his pencil. Why can we say this?

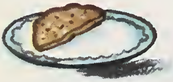


2. We can say that Mary's stick of candy is $\frac{2}{3}$ as long as Sue's. How does the picture show this?

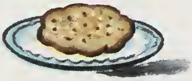
Tell the missing fractions in Ex. 3 to 13.

3. Joan's cooky is _?_ as large as Bill's cooky.

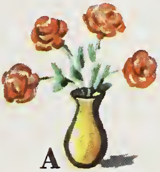
4. Bouquet **B** is _?_ as large as bouquet **A**.



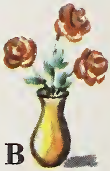
Joan's



Bill's



A

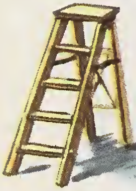


B

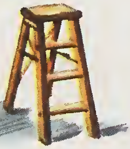
5. Ladder **D** is _?_ as high as ladder **C**.

6. Tom's steps are _?_ as high as John's steps.

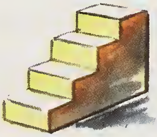
7. Ann's glass is _?_ as tall as Ruth's.



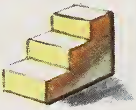
C



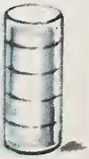
D



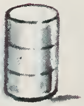
John's



Tom's

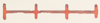


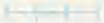
Ruth's

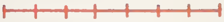


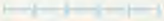
Ann's

8. Line **a** is _?_ as long as line **b**.

a. 

c. 

b. 

d. 

9. Line **c** is _?_ as long as line **d**.

10. A gallon = _?_ quarts. So 1 quart is _?_ as much as a gallon, and 3 quarts are _?_ of a gallon.

11. A foot = _?_ inches. So 1 inch is _?_ as long as a foot, and 9 inches are _?_ of a foot.

12. A bushel = _?_ pecks. So 1 peck is _?_ as much as a bushel, and 2 pecks are _?_ of a bushel.

13. A peck = _?_ quarts. So 1 quart is _?_ as much as a peck, and 3 quarts are _?_ of a peck.

To Keep in Practice

Practice in A., M., D. [W]

1. Copy columns a, b, and c, putting 879 where you see dots. Add each column.

2. Add in Ex. a, b, and c, using 8,907 for the dots.

a	b	c
. . .	2,376	5,999
527	. . .	. . .
640	4,048	3,746
898	768	9,052

3 to 5. Divide by 9 each number in column a. Check.

6 to 8. Divide by 6 each number in column b. Check.

9 to 11. Divide by 8 each number in column c. Check.

12 to 17. Multiply each number below by 74. Check.

48 30 29 71 58 96

18 to 23. Multiply each number above by 50. Check.

Practice in Comparing Sizes

[W]

On paper write the fractions missing in Ex. 1 to 11. If you need to, make drawings. This drawing is for Ex. 1.

1. Tom made a pile of 7 dimes. Sam made a pile of 4 dimes. Sam's pile was -?- as high as Tom's.

2. One table is 5 feet long. Another is 3 feet long. The second table is -?- as long as the first.

3. My table has 3 legs. Yours has 5 legs. My table has -?- as many legs as yours.

4. Nan's roses grew 5 feet high. Ruth's grew 8 feet high. Nan's roses grew -?- as high as Ruth's.

5. Joe's book is 5 inches long. Jack's is 9 inches long. Joe's book is -?- as long as Jack's.

6. Joe's story took 4 sheets of paper. Ed's took 5. Joe's story took -?- as many sheets of paper as Ed's.

7. Ann walks 9 blocks to school. May walks 7 blocks. May walks -?- as many blocks as Ann.

Use your ruler for Ex. 8 to 11.

8. Draw a line 8 inches long, and another 3 inches long. The second line is -?- as long as the first.

9. Draw two lines, 7 inches and 5 inches long. The shorter line is -?- as long as the longer line.

10. 5 inches is -?- of 8 inches.

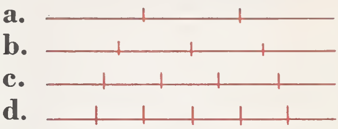
11. 4 inches is -?- of 9 inches.

Helping You Compare Fractions

[O]

Lines **a** to **d** are the same length but, in marking them off, a different number of equal parts was used for each.

1. For line **a**, the fraction naming one of the equal parts is -?-. The denominator of the fraction is -?-.



2. Give the fraction naming one of the equal parts of lines **b**, **c**, and **d**. Tell the denominator of each fraction.

For Ex. 3 to 8, use lines **a** to **d**. Each time tell whether the first fraction is larger or smaller than the second one.

3. $\frac{1}{3}$ is -?- than $\frac{1}{5}$
5. $\frac{1}{5}$ is -?- than $\frac{1}{4}$
7. $\frac{1}{5}$ is -?- than $\frac{1}{6}$
4. $\frac{1}{4}$ is -?- than $\frac{1}{6}$
6. $\frac{1}{6}$ is -?- than $\frac{1}{3}$
8. $\frac{1}{4}$ is -?- than $\frac{1}{3}$

9. The larger the number of equal parts in a line, the -?- is the size of one of the equal parts.

10. The larger the denominator of a fraction, the -?- is the size of one of the equal parts.

11. Which part of the same cake is smallest?

a. $\frac{1}{2}$, $\frac{1}{6}$, $\frac{1}{10}$
b. $\frac{1}{4}$, $\frac{1}{9}$, $\frac{1}{6}$
c. $\frac{1}{7}$, $\frac{1}{3}$, $\frac{1}{5}$

12. Say these parts of the same garden in order of their size, from smallest to largest.

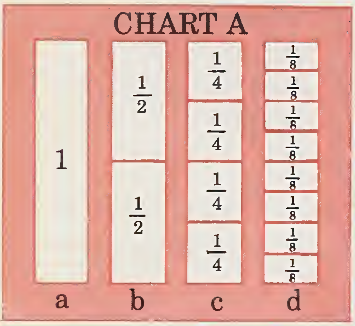
a. $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{2}$, $\frac{1}{8}$
b. $\frac{1}{6}$, $\frac{1}{10}$, $\frac{1}{7}$, $\frac{1}{4}$
c. $\frac{1}{9}$, $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{3}$

13. Does a large denominator always mean that one of the equal parts is small? Why may $\frac{1}{6}$ of a pumpkin be larger than $\frac{1}{3}$ of a lemon?

Fractions Which Mean the Same Amount

Halves, fourths, eighths; halves, thirds, sixths [O]

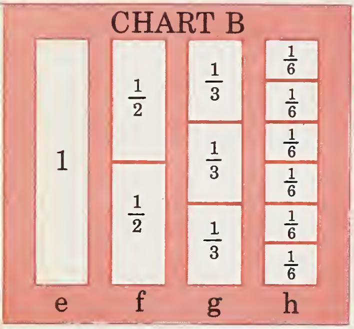
1. In chart **A**, bars **a**, **b**, **c** and **d** are the same size. Bar **a** stands for 1 whole thing. Bar **b** is divided into halves. How are bars **c** and **d** divided?



2. Use chart **A** to help you answer these questions:

$1 = \frac{?}{8}$ $\quad$ $\frac{1}{4} = \frac{?}{8}$ $\quad$ $\frac{2}{4} = \frac{?}{2}$

3. In chart **B**, bars **e**, **f**, **g**, and **h** are the same size. Tell how the bars are divided.



4. Use chart **B** to help you answer these questions:

$1 = \frac{?}{6}$ $\quad$ $\frac{1}{2} = \frac{?}{6}$ $\quad$ $\frac{4}{6} = \frac{?}{3}$

[W]

Copy and finish Ex. 5 to 12. Use chart **A** for the answers.

5. $1 = \frac{?}{4}$ $\quad$ 6. $\frac{1}{2} = \frac{?}{4}$

7. $\frac{1}{2} = \frac{?}{8}$ $\quad$ 8. $\frac{3}{4} = \frac{?}{8}$

9. $\frac{2}{8} = \frac{?}{4}$ $\quad$ 10. $\frac{4}{8} = \frac{?}{4}$ $\quad$ 11. $\frac{2}{4} = \frac{?}{8}$ $\quad$ 12. $\frac{4}{8} = \frac{?}{2}$

Copy and finish Ex. 13 to 16. Use chart **B** to find the answers.

13. $1 = \frac{?}{3}$ $\quad$ 14. $\frac{3}{6} = \frac{?}{2}$ $\quad$ 15. $\frac{1}{3} = \frac{?}{6}$ $\quad$ 16. $\frac{3}{3} = \frac{?}{2}$

Use both charts for Ex. 17 to 20. Write the larger fraction in each pair.

17. $\frac{1}{8}$ or $\frac{1}{3}$ $\quad$ 18. $\frac{7}{8}$ or $\frac{4}{4}$ $\quad$ 19. $\frac{1}{3}$ or $\frac{3}{4}$ $\quad$ 20. $\frac{5}{8}$ or $\frac{5}{6}$

Reducing Fractions to Lower Terms

[O]

1. Jack and Tom both made model airplanes. Jack said that his was $\frac{2}{3}$ yard long. Tom said that his was $\frac{4}{6}$ yard long. Were both planes the same length?

Both $\frac{2}{3}$ yard and $\frac{4}{6}$ yard were correct, but Jack's way, $\frac{2}{3}$ yard, is better. We like to use the fraction meaning fewer equal parts. Does $\frac{4}{6}$ or $\frac{2}{3}$ have fewer equal parts?

2. For $\frac{4}{6}$, the 4 and 6 are called terms. What are the terms for $\frac{2}{3}$? When $\frac{4}{6}$ is changed to the equal fraction, $\frac{2}{3}$, we say that we reduce $\frac{4}{6}$ to lower terms. Explain.

3. Reduced to lower terms, $\frac{4}{8} = \frac{?}{4}$ and $\frac{6}{8} = \frac{?}{4}$.

4. Can either $\frac{2}{4}$ or $\frac{3}{4}$ be reduced? Study Chart A.

If a fraction cannot be reduced, we say that it is in lowest terms.

5. Is the fraction $\frac{3}{6}$ in lowest terms? Study Chart B.

[W]

Copy the fractions now in lowest terms.

6. $\frac{2}{4}$
7. $\frac{1}{3}$
8. $\frac{2}{6}$
9. $\frac{4}{5}$
10. $\frac{2}{8}$
11. $\frac{1}{2}$
12. $\frac{1}{4}$
13. $\frac{7}{8}$
14. $\frac{3}{5}$
15. $\frac{5}{8}$
16. $\frac{1}{6}$
17. $\frac{4}{8}$
18. $\frac{3}{6}$
19. $\frac{1}{8}$
20. $\frac{3}{4}$

Now copy all the fractions, and reduce those not now in lowest terms.

Practice on Fractions

[W]

Write the fractions you would say in counting

1. by fifths from $\frac{1}{5}$ to $\frac{5}{5}$ ($\frac{1}{5}$, $\frac{2}{5}$, and so on).
2. by fourths from $\frac{1}{4}$ to $\frac{3}{4}$ ($\frac{1}{4}$, $\frac{2}{4}$, and so on).
3. by sixths from $\frac{1}{6}$ to $\frac{5}{6}$.
4. by eighths from $\frac{2}{8}$ to $\frac{7}{8}$.

The fractions below mean parts of the same circle. Write the fractions in each set from smallest to largest.

5. $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{6}$ 6. $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{8}$ 7. $\frac{1}{5}$, $\frac{1}{7}$, $\frac{1}{3}$ 8. $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$

Copy the fractions already in lowest terms.

9. $\frac{3}{4}$ 10. $\frac{3}{8}$ 11. $\frac{3}{6}$ 12. $\frac{2}{3}$ 13. $\frac{2}{8}$ 14. $\frac{2}{5}$

Change these fractions to their lowest terms:

15. $\frac{2}{8}$ 16. $\frac{2}{4}$ 17. $\frac{6}{8}$ 18. $\frac{3}{6}$ 19. $\frac{4}{8}$ 20. $\frac{4}{6}$

Written Practice

A., S., M., D.

Copy, and work. Check all your answers.

	a	b	c
1.	148 + 273	17 × \$0.39	\$43.25 ÷ 6
2.	26 × \$0.89	\$72.07 ÷ 8	689 from 5,170
3.	9 × \$3.78	\$29.56 ÷ 3	3,000 − 2,964
4.	6,187 ÷ 9	74 × \$0.89	\$17.92 ÷ 5
5.	86 × \$0.74	482 ÷ 7	437 + 578 + 6,875
6.	8,496 + 46	59 × \$0.87	8,212 minus 809

Testing Time in Sue's Class

1- and 2-step problems [W]

Write your work for Ex. 1 to 7. Be careful! Sometimes a problem has two steps.

1. Last week Sue's class had 2 tests each day for 4 days. How many tests in all did Sue's class have that week?

2. In 5 of his tests, Joe had marks of 78, 73, 86, 82, and 91. What was his average on the tests?

3. Mike's average number of mistakes on the 5 tests was 3. What was the total number of his mistakes on the tests?

4. The spelling test was 50 words long. Tom missed 11 words. How many words did he spell correctly?

5. Seven boys missed a total of 175 spelling words. On the average, each of these boys missed how many words?

6. In the arithmetic test, the average mark of the boys was 82. That of the girls was 79. How many points higher was the boys' arithmetic average than the girls'?

7. The class used all but 175 sheets of paper in a package of 500 sheets. How many sheets did they use on the average for each of the 5 tests?

Adding and Subtracting Like-Fractions

Meaning [O]

1. Jean used $\frac{1}{3}$ yard of cloth for a doll's dress and $\frac{2}{3}$ yard for another dress. In all, how much cloth did she use?

1 third + 2 thirds = -?- thirds.

In both of these fractions, the size of one of the equal parts is the same, $\frac{1}{3}$, so $\frac{1}{3}$ and $\frac{2}{3}$ are like-fractions. We can add them.

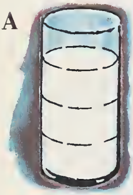
$\frac{3}{3}$ yard = -?- whole yard.

2. Jean used $\frac{3}{4}$ yard of ribbon for a belt and $\frac{1}{4}$ yard for a hair ribbon for her doll. How much ribbon did Jean use?

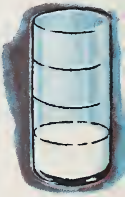
Can we add these fractions?

3 fourths + 1 fourth = -?- fourths.

$\frac{4}{4}$ yard = -?- whole yard.



A



B

3. May had $\frac{3}{4}$ of a glass of milk (picture A). After drinking some, she had $\frac{1}{4}$ of a glass left (picture B). How much milk did she drink?

3 fourths − 1 fourth = -?- fourths.

Reduce your answer to lowest terms.

Why could you subtract? Are these like-fractions?

4. Mary's mother put $\frac{7}{8}$ of a cake on the table. After dinner, $\frac{3}{8}$ was left. How much of the cake was eaten?

On the board, draw a square with $\frac{7}{8}$ shaded to show the part of the cake Mother put on the table. Cover $\frac{3}{8}$.

7 eighths − 3 eighths = -?- eighths. Reduce your answer to lowest terms.

Tell what belongs in place of each question mark. The fractions in each example are parts of a candy bar.

5. 1 fifth + 1 fifth = _?_ fifths.

6. 2 fourths + 1 fourth = _?_ fourths.

7. 3 sixths + 2 sixths = 5 _?_

8. 4 eighths − 3 eighths = 1 _?_.

9. 5 fourths − 2 fourths = _?_ fourths.

10. 4 fifths − 2 fifths = _?_ fifths.

11. 6 eighths − 1 eighth = 5 _?_.

12. 7 ninths − 5 ninths = 2 _?_.

13. 3 fourths minus 2 fourths = ?

14. 5 eighths plus 2 eighths = ?

15. 1 third from 2 thirds = ?

16. 2 fifths + 1 fifth + 1 fifth = _?_ fifths.

17. 5 sixths minus 4 sixths = ?

18. 2 sixths and 3 sixths = ?

19. 2 fourths minus 1 fourth = ?

20. 5 fifths − 2 fifths = ?

21. 1 fourth + 1 fourth + 2 fourths = ?

22. 5 eighths minus 3 eighths = ?

23. 3 fifths plus 1 fifth = ?

24. 7 eighths minus 2 eighths = ?

You can add and subtract like-fractions.

Problems with Fractions

A. and S. [O]

Remember: In the A. and S. problems with whole numbers, you must be sure that the numbers stand for like-things, as sugar or yards. In A. and S. problems with fractions, you must also be sure that the numbers are like-fractions.

Tell why you can add or subtract in Ex. 1 to 6. Say the example and its answer in lowest terms.

1. In making a cake, Mary used $\frac{1}{4}$ cup of white sugar and $\frac{3}{4}$ cup of brown sugar. How many cups of sugar was that in all? 1 fourth + 3 fourths = ?
Did you reduce your answer?

2. In one cake, Mary used $\frac{3}{8}$ cup of dates and in another $\frac{1}{8}$ cup. That made how many cups of dates in all?

3. Sam had $\frac{5}{6}$ yard of paper. He used $\frac{3}{6}$ yard to make a kite. Then how many yards of paper did he have left?

4. Jack lives $\frac{7}{8}$ mile from the school, and Bill lives $\frac{3}{8}$ mile from the school. Which boy lives farther from the school? How much farther?

5. Laura's lunch box weighed $\frac{5}{8}$ pound when full and $\frac{3}{8}$ pound empty. How much heavier was it when full?

6. A fudge cake takes $\frac{5}{6}$ cup of sugar. A white cake takes $\frac{4}{6}$ cup. How much less sugar does the white cake take than the fudge cake?

Test Yourself 22

[W]

Copy and work.

	a	b	c	d	e
1.	608 −578	$0.84 ×56	$87.83 −79.93	$0.97 ×65	88 ×32
2.	2)$5.82	4)1,322	7)2,159	5)263	3)2,637
3.	8)562	9)647	6)1,522		
4.	$9.01 −3.78	$0.51 ×79	317 −90	473 692 850 +379	5,825 308 683 +9,987
5.	1,713 −908	$0.67 ×98	$0.63 ×57	98 ×87	5,000 −2,806

Right or Wrong? Why?

[O]

Which sentences are sensible? Which are not? Why?

1. Ann says that $\frac{3}{6}$ is a bigger fraction than $\frac{3}{4}$ because $\frac{3}{6}$ has a larger denominator.

2. If May's stick of candy is $\frac{2}{3}$ as long as Jim's, then Jim's stick is longer than May's.

3. Bob says that $\frac{8}{8}$ of a pie is smaller than $\frac{4}{4}$ of the pie because eighths are smaller than fourths.

4. Joan calls $\frac{4}{6}$ and $\frac{4}{9}$ like-fractions because they have the same figure in the numerators.

5. Tom says that the fraction $\frac{5}{7}$ is in its lowest terms because it cannot be reduced.

Oral Practice

For rows 1 to 5 give estimated answers.

	a	b	c	d
1.	$49 + 31$	7×38	$78 - 49$	$556 \div 8$
2.	$61 - 22$	$179 \div 6$	$22 + 30$	8×51
3.	6×69	$51 + 28$	$39 - 22$	$269 \div 9$
4.	$500 \div 7$	$81 - 49$	71×9	$39 + 26$
5.	41×8	$398 \div 5$	$325 \div 8$	6×58

Tell the value of **n.**

	a	b	c
6.	$45 = 8 + n$	$9 = n \div 8$	$42 = n$ times 7
7.	$n \div 6 = 8$	$n \div 7 = 7$	8 plus $n = 56$
8.	$8 \times n = 72$	$n + 9 = 63$	$n \times 4 = 36$
9.	$56 \div 7 = n$	$n \div 6 = 4$	$64 = n \times 8$
10.	$81 \div 9 = n$	$72 \div n = 8$	$48 \div n = 6$

Written Practice

Copy and work.

	a	b	c
1.	$46 \times \$0.29$	$1{,}817 \div 2$	$\$9.06 - \$4.96$
2.	$204 \div 5$	93×38	$\$45.73 + \$9.89$
3.	$64 \times \$0.85$	$217 \div 7$	$\$11.71 - \$10.69$
4.	39×69	$3{,}938 \div 4$	$8{,}423 - 5{,}381$
5.	$5{,}655 \div 8$	837×5	$365 + 975 + 1{,}583$
6.	$6{,}015 \div 6$	$28 \times \$0.97$	$\$39.22 - \$9.65$
7.	584×8	$5{,}047 \div 9$	$7 \times \$9.60$

Working with Measures

Using pictures in problem-solving [W]

Write your work for Ex. 1 to 8. Use the pictures to get the numbers you need. (6″ means "6 inches" and 3′ means "3 feet.")

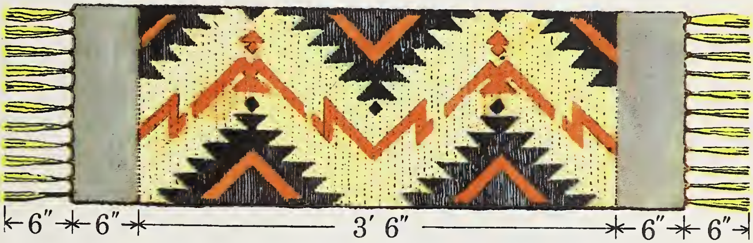
1. How many inches long is the rug shown below, not counting the fringe at the ends?

2. Why is 3′ 6″ the same distance as 3½ feet?

3. How many inches are there in the length of the rug between the 6-inch gray pieces at the ends?

4. How many inches long is the whole rug, counting both the fringe and the gray pieces?

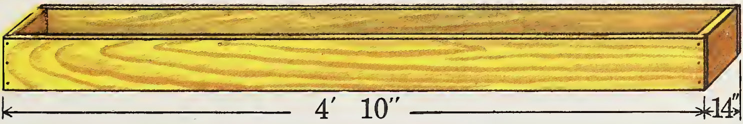
5. Is the total length of the rug more than or less than 4 feet? How many inches more or less?



6. How many inches long is the window box below?

7. Is a 4-foot board too short to make one of the long sides of the window box? How many inches too short?

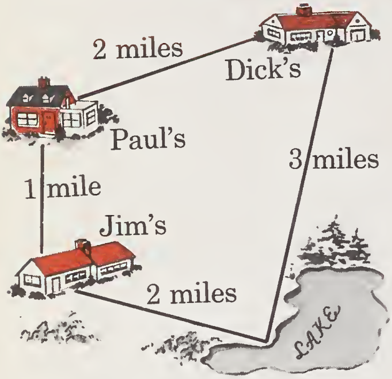
8. Could you cut both ends of the box from a 3-foot board? HELPER: Change 3 feet to inches.



Working with Pictures

Problem-solving [W]

Write your work for Ex. 1 to 6. Use the picture to get the numbers you need.



1. How far must Dick walk to reach Jim's house if he goes by way of Paul's house?

2. How far must Jim go to reach Dick's house if he goes by way of the lake?

3. How much farther is it for Dick to go to the lake by Paul's and Jim's houses than from his own house? HELPER: This is a two-step problem.

4. If Dick walks to Paul's, then to Jim's, then to the lake, and then home, how far will he walk?

5. How much farther is it from the lake to Dick's house than to Jim's house?

6. If Jim goes to Dick's house by way of Paul's and then back home the same way, how far must he walk?

Practice in Division

[W]

1 to 5. Divide each number below by 7. Check.

916 463 607 6,491 5,912

6 to 10. Divide each number above by 8. Check.

11 to 15. Divide each number below by 9. Check.

164 522 153 491 5,521

Making Change for Large Bills

[O]

1. Mrs. Speed's groceries cost 78¢. As the clerk gave her change from $1, he counted this way:

"78¢, 79¢, 80¢, 90¢, 1 dollar."

$0.24
$0.22
$0.32
$0.78

Sometimes, of course, we pay for groceries with $2 and $5 bills. Then we count the change up to an even dollar and use dollar bills for the rest of the change.

For Ex. 2 to 4, count out the change given to see if it is correct.

2. Cost of fruit, $0.57. Paid $2.00. Change, 3 cents, 1 dime, 1 nickel, 1 quarter, 1 dollar bill.

3. Cost of book, $1.98. Paid $5.00. Change, 2 cents, 2 dollar bills.

4. Cost of paint, $3.03. Paid $5.00. Change, 2 cents, 2 dimes, 1 quarter, 1 half dollar, 1 dollar bill.

For Ex. 5 to 12, count out the change to be given.

	Cost	Paid		Cost	Paid
5.	$0.69	$2.00	**9.**	$1.37	$2.00
6.	$1.82	$2.00	**10.**	$4.16	$5.00
7.	$0.34	$1.00	**11.**	$0.59	$2.00
8.	$3.07	$5.00	**12.**	$0.17	$0.50

Grocery-Store Problems

2-step problems **[W]**

Write your work for Ex. 1 to 7. Look for hidden questions in these two-step problems.

1. One day Mr. Rich took in $95.86. The goods he sold cost him $67.58. Other costs for the day came to $13.75. How much did he have left over?

2. Mr. Rich took in $4.25 for berries and then sold 18 more boxes of the berries at 48¢ a box. In all, how much did he take in?

3. He bought 24 cans of peas for $3.65. Selling at 18¢ a can, how much more than the cost would he make?

4. Mr. Rich put on sale 15 boxes of canned salmon, 36 cans to the box. After the sale, he had 18 cans left. How many cans of salmon did he sell?

5. In two weeks one of Mr. Rich's customers bought groceries amounting to $25.96 and $31.08. She paid $50.00 on her bill. How much must she still pay?

6. In one order, another customer bought fruit and vegetables amounting to $4.23, canned goods amounting to $3.89, and other groceries amounting to $1.57. How much change did this customer get from a $10 bill?

7. Still another customer's grocery bills for four months amounted to $18.57, $20.09, $23.56, and $19.38. What was this customer's average monthly bill?

Do You Understand?

Test of Information and Meaning 8

Use fractions from box **A** for Ex. 1 to 4.

A

$\frac{4}{8}$ $\frac{4}{6}$ $\frac{3}{5}$ $\frac{1}{3}$

$\frac{2}{3}$ $\frac{2}{4}$ $\frac{6}{8}$ $\frac{5}{7}$

1. Copy a fraction whose equal parts have the size $\frac{1}{5}$.

2. Copy two equal fractions.

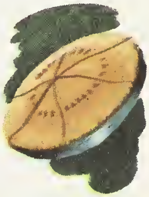
3. Copy four fractions that are in their lowest terms.

4. Copy two pairs of like-fractions.

For Ex. 5 to 7, write the fractions in each set in the order of their size, from smallest to largest.

5. $\frac{1}{7}, \frac{1}{3}, \frac{1}{8}$ **6.** $\frac{1}{2}, \frac{1}{5}, \frac{1}{4}$ **7.** $\frac{1}{8}, \frac{1}{9}, \frac{1}{10}$

8. Write the fraction which names one of the equal parts of the divided pie.



9. Write the fractions you would say in counting by fifths from $\frac{2}{5}$ to $\frac{5}{5}$.

For Ex. 10 to 14, write just "Yes" or "No" as answers.

10. Can you add like-fractions?

11. In Ex. **B**, is there a 0 in one's place in the product?

12. In **C**, can you leave out 0 in the second partial product?

B	**C**
48 ×30 1,440	48 ×35 240 1 440 1,680

13. Do find-the-average problems sometimes have two steps?

14. Does the numerator of a fraction tell the size of one of its equal parts?

Do You Make Mistakes?

Diagnostic Test 8

		Study Pages	Practice Sets
1.	Find the average of **a.** 16, 20, 15; **b.** 85, 124, 55, 48.	279–281	8
2.	Multiply. Write the second partial products the short way. **a.** 37 × 54 **b.** 28 × 63	288–289	48, 49
3.	**a.** 2 eighths + 3 eighths = ? **b.** 4 sixths + 1 sixth = ?	300–301	
4.	**a.** 3 fourths − 2 fourths = ? **b.** 5 eighths − 2 eighths = ?	300–301	
5.	Write answers in lowest terms. **a.** $\frac{2}{4}$ **b.** $\frac{2}{8}$ **c.** $\frac{4}{6}$ **d.** $\frac{6}{8}$	296–297	
6.	1 foot = 12 inches, so 5 inches are _?_ of 1 foot.	292–293	

Written Practice

S., M., and D.

1 to 6. Multiply each number below by 9. Check.

750 961 483 507 829 645

7 to 12. Divide each number below by 8. Check.

728 256 550 5,603 3,383 4,518

13 to 18. Subtract 918 from each number below.

6,728 5,256 3,550 6,503 3,383 5,418

Test Yourself 23

[W]

Copy and work. Do not check your answers.

	a	b	c
1.	$\frac{1}{7}$ of 452	39 × 27	\$53.72 minus \$46.65
2.	8 × \$0.64	9,395 ÷ 5	\$29.35 ÷ 3
3.	879 × 2	$\frac{1}{8}$ of \$72.64	879 from 3,087
4.	4,205 ÷ 6	93 × 89	\$34.93 ÷ 5
5.	72 × 82	9,027 ÷ 9	\$80.73 – \$68.76
6.	934 ÷ 4	89 × 28	\$40.21 – \$8.47

7. 42 + 67 + 70 + 58 + 89
8. 207 + 408 + 7,199
9. 337 + 57 + 508 + 69
10. 334 + 438 + 7,216

How Well Can You Figure?

Computation Test 8

Copy and work. Check all answers.

	a	b	c	d
1.	$\begin{array}{r}321\\-283\\\hline\end{array}$	$\begin{array}{r}924\\\times 7\\\hline\end{array}$	$\begin{array}{r}537\\49\\608\\+1,297\\\hline\end{array}$	$\begin{array}{r}24\\540\\898\\+68\\\hline\end{array}$
2.	$\begin{array}{r}8,183\\-8,079\\\hline\end{array}$	$\begin{array}{r}86\\\times 63\\\hline\end{array}$		
3.	$7\overline{)642}$	$4\overline{)3,492}$	$\frac{1}{6}$ of 5,059	$\frac{1}{9}$ of 189
4.	$\begin{array}{r}15\\\times 49\\\hline\end{array}$	$\begin{array}{r}27\\\times 81\\\hline\end{array}$	$\begin{array}{r}\$70.60\\-28.07\\\hline\end{array}$	$\begin{array}{r}\$0.83\\\times 25\\\hline\end{array}$
5.	$3\overline{)121}$	$5\overline{)4,880}$	$\frac{1}{8}$ of 7,362	$\frac{1}{3}$ of 1,047

Can You Solve Problems?

Problem Test 8

Write your work for Ex. 1 to 7. Work carefully.

1. Joe earned $0.85 a day for 6 days helping plant the family garden. How much more did he need to buy a baseball suit for $7.50?

2. Joe's father sent him to the store to buy some rope for $1.75 and a new shovel for $2.65. How much change did he get from a $10 bill?

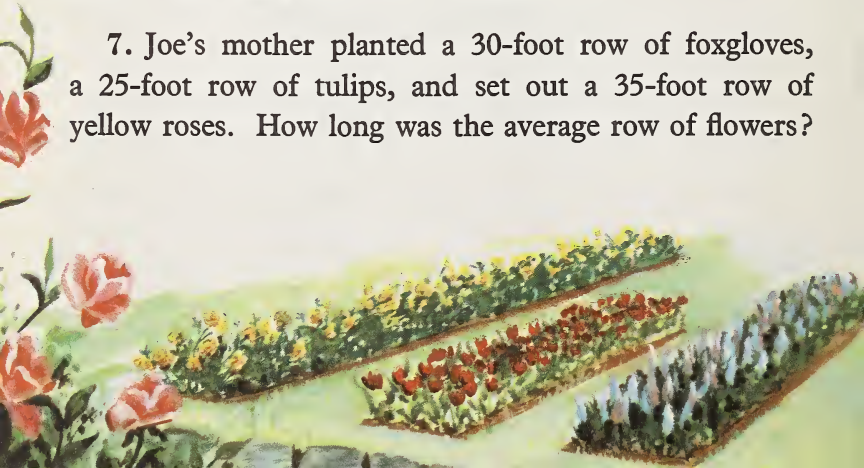
3. Joe and his father planted a pound of peas that cost 95¢, and 3 dozen tomato plants that cost 45¢ a dozen. How much did these things cost in all?

4. They planted three 25-foot rows of bush beans and a 40-foot row of pole beans. How many more feet of bush beans did they plant than pole beans?

5. They put 12 watermelon seeds in each of 8 hills. If all the seeds come up, they will pull up $\frac{1}{2}$ of the plants. How many plants will they pull up?

6. They put an average of 8 squash seeds in each of 6 hills. That was a total of _?_ seeds.

7. Joe's mother planted a 30-foot row of foxgloves, a 25-foot row of tulips, and set out a 35-foot row of yellow roses. How long was the average row of flowers?



The 81 Addition Facts

$$\begin{array}{rrrrrrrrr} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \end{array}$$

$$\begin{array}{rrrrrrrrr} 2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \end{array}$$

$$\begin{array}{rrrrrrrrr} 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \end{array}$$

$$\begin{array}{rrrrrrrrr} 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 \end{array}$$

$$\begin{array}{rrrrrrrrr} 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 \end{array}$$

$$\begin{array}{rrrrrrrrr} 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 \end{array}$$

$$\begin{array}{rrrrrrrrr} 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 \end{array}$$

$$\begin{array}{rrrrrrrrr} 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 & 8 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 \end{array}$$

$$\begin{array}{rrrrrrrrr} 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 & 9 \\ \underline{+1} & \underline{+2} & \underline{+3} & \underline{+4} & \underline{+5} & \underline{+6} & \underline{+7} & \underline{+8} & \underline{+9} \\ 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 & 18 \end{array}$$

The 81 Subtraction Facts

$$\begin{array}{rrrrrrrrr} 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\ -1 & -1 & -1 & -1 & -1 & -1 & -1 & -1 & -1 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \\ -2 & -2 & -2 & -2 & -2 & -2 & -2 & -2 & -2 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\ -3 & -3 & -3 & -3 & -3 & -3 & -3 & -3 & -3 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 \\ -4 & -4 & -4 & -4 & -4 & -4 & -4 & -4 & -4 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 \\ -5 & -5 & -5 & -5 & -5 & -5 & -5 & -5 & -5 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 \\ -6 & -6 & -6 & -6 & -6 & -6 & -6 & -6 & -6 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 \\ -7 & -7 & -7 & -7 & -7 & -7 & -7 & -7 & -7 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 \\ -8 & -8 & -8 & -8 & -8 & -8 & -8 & -8 & -8 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

$$\begin{array}{rrrrrrrrr} 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 & 18 \\ -9 & -9 & -9 & -9 & -9 & -9 & -9 & -9 & -9 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \end{array}$$

The 81 Multiplication Facts

$$\begin{array}{r}1\\ \times 1\\ \hline 1\end{array}\qquad\begin{array}{r}2\\ \times 1\\ \hline 2\end{array}\qquad\begin{array}{r}3\\ \times 1\\ \hline 3\end{array}\qquad\begin{array}{r}4\\ \times 1\\ \hline 4\end{array}\qquad\begin{array}{r}5\\ \times 1\\ \hline 5\end{array}\qquad\begin{array}{r}6\\ \times 1\\ \hline 6\end{array}\qquad\begin{array}{r}7\\ \times 1\\ \hline 7\end{array}\qquad\begin{array}{r}8\\ \times 1\\ \hline 8\end{array}\qquad\begin{array}{r}9\\ \times 1\\ \hline 9\end{array}$$

$$\begin{array}{r}1\\ \times 2\\ \hline 2\end{array}\qquad\begin{array}{r}2\\ \times 2\\ \hline 4\end{array}\qquad\begin{array}{r}3\\ \times 2\\ \hline 6\end{array}\qquad\begin{array}{r}4\\ \times 2\\ \hline 8\end{array}\qquad\begin{array}{r}5\\ \times 2\\ \hline 10\end{array}\qquad\begin{array}{r}6\\ \times 2\\ \hline 12\end{array}\qquad\begin{array}{r}7\\ \times 2\\ \hline 14\end{array}\qquad\begin{array}{r}8\\ \times 2\\ \hline 16\end{array}\qquad\begin{array}{r}9\\ \times 2\\ \hline 18\end{array}$$

$$\begin{array}{r}1\\ \times 3\\ \hline 3\end{array}\qquad\begin{array}{r}2\\ \times 3\\ \hline 6\end{array}\qquad\begin{array}{r}3\\ \times 3\\ \hline 9\end{array}\qquad\begin{array}{r}4\\ \times 3\\ \hline 12\end{array}\qquad\begin{array}{r}5\\ \times 3\\ \hline 15\end{array}\qquad\begin{array}{r}6\\ \times 3\\ \hline 18\end{array}\qquad\begin{array}{r}7\\ \times 3\\ \hline 21\end{array}\qquad\begin{array}{r}8\\ \times 3\\ \hline 24\end{array}\qquad\begin{array}{r}9\\ \times 3\\ \hline 27\end{array}$$

$$\begin{array}{r}1\\ \times 4\\ \hline 4\end{array}\qquad\begin{array}{r}2\\ \times 4\\ \hline 8\end{array}\qquad\begin{array}{r}3\\ \times 4\\ \hline 12\end{array}\qquad\begin{array}{r}4\\ \times 4\\ \hline 16\end{array}\qquad\begin{array}{r}5\\ \times 4\\ \hline 20\end{array}\qquad\begin{array}{r}6\\ \times 4\\ \hline 24\end{array}\qquad\begin{array}{r}7\\ \times 4\\ \hline 28\end{array}\qquad\begin{array}{r}8\\ \times 4\\ \hline 32\end{array}\qquad\begin{array}{r}9\\ \times 4\\ \hline 36\end{array}$$

$$\begin{array}{r}1\\ \times 5\\ \hline 5\end{array}\qquad\begin{array}{r}2\\ \times 5\\ \hline 10\end{array}\qquad\begin{array}{r}3\\ \times 5\\ \hline 15\end{array}\qquad\begin{array}{r}4\\ \times 5\\ \hline 20\end{array}\qquad\begin{array}{r}5\\ \times 5\\ \hline 25\end{array}\qquad\begin{array}{r}6\\ \times 5\\ \hline 30\end{array}\qquad\begin{array}{r}7\\ \times 5\\ \hline 35\end{array}\qquad\begin{array}{r}8\\ \times 5\\ \hline 40\end{array}\qquad\begin{array}{r}9\\ \times 5\\ \hline 45\end{array}$$

$$\begin{array}{r}1\\ \times 6\\ \hline 6\end{array}\qquad\begin{array}{r}2\\ \times 6\\ \hline 12\end{array}\qquad\begin{array}{r}3\\ \times 6\\ \hline 18\end{array}\qquad\begin{array}{r}4\\ \times 6\\ \hline 24\end{array}\qquad\begin{array}{r}5\\ \times 6\\ \hline 30\end{array}\qquad\begin{array}{r}6\\ \times 6\\ \hline 36\end{array}\qquad\begin{array}{r}7\\ \times 6\\ \hline 42\end{array}\qquad\begin{array}{r}8\\ \times 6\\ \hline 48\end{array}\qquad\begin{array}{r}9\\ \times 6\\ \hline 54\end{array}$$

$$\begin{array}{r}1\\ \times 7\\ \hline 7\end{array}\qquad\begin{array}{r}2\\ \times 7\\ \hline 14\end{array}\qquad\begin{array}{r}3\\ \times 7\\ \hline 21\end{array}\qquad\begin{array}{r}4\\ \times 7\\ \hline 28\end{array}\qquad\begin{array}{r}5\\ \times 7\\ \hline 35\end{array}\qquad\begin{array}{r}6\\ \times 7\\ \hline 42\end{array}\qquad\begin{array}{r}7\\ \times 7\\ \hline 49\end{array}\qquad\begin{array}{r}8\\ \times 7\\ \hline 56\end{array}\qquad\begin{array}{r}9\\ \times 7\\ \hline 63\end{array}$$

$$\begin{array}{r}1\\ \times 8\\ \hline 8\end{array}\qquad\begin{array}{r}2\\ \times 8\\ \hline 16\end{array}\qquad\begin{array}{r}3\\ \times 8\\ \hline 24\end{array}\qquad\begin{array}{r}4\\ \times 8\\ \hline 32\end{array}\qquad\begin{array}{r}5\\ \times 8\\ \hline 40\end{array}\qquad\begin{array}{r}6\\ \times 8\\ \hline 48\end{array}\qquad\begin{array}{r}7\\ \times 8\\ \hline 56\end{array}\qquad\begin{array}{r}8\\ \times 8\\ \hline 64\end{array}\qquad\begin{array}{r}9\\ \times 8\\ \hline 72\end{array}$$

$$\begin{array}{r}1\\ \times 9\\ \hline 9\end{array}\qquad\begin{array}{r}2\\ \times 9\\ \hline 18\end{array}\qquad\begin{array}{r}3\\ \times 9\\ \hline 27\end{array}\qquad\begin{array}{r}4\\ \times 9\\ \hline 36\end{array}\qquad\begin{array}{r}5\\ \times 9\\ \hline 45\end{array}\qquad\begin{array}{r}6\\ \times 9\\ \hline 54\end{array}\qquad\begin{array}{r}7\\ \times 9\\ \hline 63\end{array}\qquad\begin{array}{r}8\\ \times 9\\ \hline 72\end{array}\qquad\begin{array}{r}9\\ \times 9\\ \hline 81\end{array}$$

The 81 Division Facts

$\begin{array}{r}1\\1\overline{)1}\end{array}$	$\begin{array}{r}2\\1\overline{)2}\end{array}$	$\begin{array}{r}3\\1\overline{)3}\end{array}$	$\begin{array}{r}4\\1\overline{)4}\end{array}$	$\begin{array}{r}5\\1\overline{)5}\end{array}$	$\begin{array}{r}6\\1\overline{)6}\end{array}$	$\begin{array}{r}7\\1\overline{)7}\end{array}$	$\begin{array}{r}8\\1\overline{)8}\end{array}$	$\begin{array}{r}9\\1\overline{)9}\end{array}$
$\begin{array}{r}1\\2\overline{)2}\end{array}$	$\begin{array}{r}2\\2\overline{)4}\end{array}$	$\begin{array}{r}3\\2\overline{)6}\end{array}$	$\begin{array}{r}4\\2\overline{)8}\end{array}$	$\begin{array}{r}5\\2\overline{)10}\end{array}$	$\begin{array}{r}6\\2\overline{)12}\end{array}$	$\begin{array}{r}7\\2\overline{)14}\end{array}$	$\begin{array}{r}8\\2\overline{)16}\end{array}$	$\begin{array}{r}9\\2\overline{)18}\end{array}$
$\begin{array}{r}1\\3\overline{)3}\end{array}$	$\begin{array}{r}2\\3\overline{)6}\end{array}$	$\begin{array}{r}3\\3\overline{)9}\end{array}$	$\begin{array}{r}4\\3\overline{)12}\end{array}$	$\begin{array}{r}5\\3\overline{)15}\end{array}$	$\begin{array}{r}6\\3\overline{)18}\end{array}$	$\begin{array}{r}7\\3\overline{)21}\end{array}$	$\begin{array}{r}8\\3\overline{)24}\end{array}$	$\begin{array}{r}9\\3\overline{)27}\end{array}$
$\begin{array}{r}1\\4\overline{)4}\end{array}$	$\begin{array}{r}2\\4\overline{)8}\end{array}$	$\begin{array}{r}3\\4\overline{)12}\end{array}$	$\begin{array}{r}4\\4\overline{)16}\end{array}$	$\begin{array}{r}5\\4\overline{)20}\end{array}$	$\begin{array}{r}6\\4\overline{)24}\end{array}$	$\begin{array}{r}7\\4\overline{)28}\end{array}$	$\begin{array}{r}8\\4\overline{)32}\end{array}$	$\begin{array}{r}9\\4\overline{)36}\end{array}$
$\begin{array}{r}1\\5\overline{)5}\end{array}$	$\begin{array}{r}2\\5\overline{)10}\end{array}$	$\begin{array}{r}3\\5\overline{)15}\end{array}$	$\begin{array}{r}4\\5\overline{)20}\end{array}$	$\begin{array}{r}5\\5\overline{)25}\end{array}$	$\begin{array}{r}6\\5\overline{)30}\end{array}$	$\begin{array}{r}7\\5\overline{)35}\end{array}$	$\begin{array}{r}8\\5\overline{)40}\end{array}$	$\begin{array}{r}9\\5\overline{)45}\end{array}$
$\begin{array}{r}1\\6\overline{)6}\end{array}$	$\begin{array}{r}2\\6\overline{)12}\end{array}$	$\begin{array}{r}3\\6\overline{)18}\end{array}$	$\begin{array}{r}4\\6\overline{)24}\end{array}$	$\begin{array}{r}5\\6\overline{)30}\end{array}$	$\begin{array}{r}6\\6\overline{)36}\end{array}$	$\begin{array}{r}7\\6\overline{)42}\end{array}$	$\begin{array}{r}8\\6\overline{)48}\end{array}$	$\begin{array}{r}9\\6\overline{)54}\end{array}$
$\begin{array}{r}1\\7\overline{)7}\end{array}$	$\begin{array}{r}2\\7\overline{)14}\end{array}$	$\begin{array}{r}3\\7\overline{)21}\end{array}$	$\begin{array}{r}4\\7\overline{)28}\end{array}$	$\begin{array}{r}5\\7\overline{)35}\end{array}$	$\begin{array}{r}6\\7\overline{)42}\end{array}$	$\begin{array}{r}7\\7\overline{)49}\end{array}$	$\begin{array}{r}8\\7\overline{)56}\end{array}$	$\begin{array}{r}9\\7\overline{)63}\end{array}$
$\begin{array}{r}1\\8\overline{)8}\end{array}$	$\begin{array}{r}2\\8\overline{)16}\end{array}$	$\begin{array}{r}3\\8\overline{)24}\end{array}$	$\begin{array}{r}4\\8\overline{)32}\end{array}$	$\begin{array}{r}5\\8\overline{)40}\end{array}$	$\begin{array}{r}6\\8\overline{)48}\end{array}$	$\begin{array}{r}7\\8\overline{)56}\end{array}$	$\begin{array}{r}8\\8\overline{)64}\end{array}$	$\begin{array}{r}9\\8\overline{)72}\end{array}$
$\begin{array}{r}1\\9\overline{)9}\end{array}$	$\begin{array}{r}2\\9\overline{)18}\end{array}$	$\begin{array}{r}3\\9\overline{)27}\end{array}$	$\begin{array}{r}4\\9\overline{)36}\end{array}$	$\begin{array}{r}5\\9\overline{)45}\end{array}$	$\begin{array}{r}6\\9\overline{)54}\end{array}$	$\begin{array}{r}7\\9\overline{)63}\end{array}$	$\begin{array}{r}8\\9\overline{)72}\end{array}$	$\begin{array}{r}9\\9\overline{)81}\end{array}$

Extra Practice

		a	b	c	d	e	f	g	h	i
Set 1	1.	1 +2	3 +1	2 +3	4 +2	1 +1	2 +1	8 +1	4 +5	6 +3
	2.	2 +4	1 +5	4 +3	2 +7	2 +2	4 +4	4 +1	6 +1	5 +4
Set 2	1.	9 +1	8 +3	7 +5	7 +3	3 +9	5 +5	9 +8	6 +9	6 +6
	2.	4 +6	5 +8	7 +8	7 +7	9 +9	9 +7	4 +8	7 +6	9 +5

		a	b	c	d	e	f	g	h
Set 3	1.	14 +2	12 +7	15 +4	10 +9	12 +6	11 +2	13 +2	10 +5
	2.	2 +13	12 +4	16 +3	4 +15	14 +4	3 +15	2 +16	12 +2
	3.	12 +5	17 +2	10 +8	2 +10	15 +2	14 +3	7 +10	11 +5
	4.	1 +14	13 +6	16 +2	15 +3	13 +3	10 +7	1 +13	13 +4
Set 4	1.	59 +3	8 +47	8 +35	17 +9	24 +9	64 +7	5 +19	6 +25
	2.	49 +26	38 +12	28 +38	36 +48	53 +28	67 +13	37 +34	29 +61

		a	b	c	d	e	f	g	h
Set 5	**1.**	2	3	1	3	4	5	4	6
		1	4	5	3	2	0	2	0
		+6	+2	+1	+2	+2	+4	+3	+3
	2.	23	24	73	23	54	20	33	18
		+30	+13	+10	+72	+14	+29	+45	+40
	3.	407	543	253	201	302	322	651	500
		+322	+346	+743	+503	+566	+243	+132	+259

		a	b	c	d	e	f
Set 6	**1.**	602	205	409	457	255	308
		+279	+676	+486	+504	+725	+486
	2.	536	239	553	248	375	409
		+325	+673	+256	+704	+409	+581

Set 7	**1.**	568	289	377	185	375	279
		+257	+482	+444	+535	+367	+621
	2.	358	179	486	249	227	537
		+472	+755	+169	+289	+398	+165

		a	b	c	d	e	f	g
Set 8	**1.**	5¢	7¢	3	8	9	4	6
		7¢	7¢	8	5	8	7	9
		6¢	5¢	6	4	7	4	6
		+8¢	+9¢	+8	+7	+8	+8	+5
	2.	24	30	14	10¢	23¢	406	113
		14	11	48	19¢	16¢	183	227
		36	19	15	22¢	45¢	38	16
		+15	+27	+20	+48¢	+15¢	+67	+23

		a	b	c	d	e	f	g	h
Set 9	**1.**	2 −1	4 −2	4 −1	9 −6	5 −2	7 −4	9 −7	6 −3
	2.	9 −5	3 −1	9 −3	9 −1	7 −6	4 −3	8 −5	8 −4
Set 10	**1.**	10 −1	16 −7	14 −7	18 −9	11 −2	13 −7	10 −7	14 −5
	2.	13 −4	17 −8	17 −9	14 −6	13 −5	11 −5	10 −5	13 −9
Set 11	**1.**	15 −1	16 −2	19 −7	16 −3	17 −6	19 −4	15 −2	18 −6
	2.	18 −2	14 −2	18 −4	17 −4	19 −5	16 −6	17 −3	15 −3
	3.	25 −14	29 −14	13 −11	33 −22	48 −16	38 −21	46 −25	35 −24
	4.	264 −23	276 −34	598 −35	478 −37	187 −44	335 −214	264 −111	455 −323
Set 12	**1.**	21 −8	35 −9	20 −4	24 −9	33 −8	55 −6	91 −9	50 −8
	2.	60 −9	70 −2	57 −9	42 −3	73 −6	41 −7	32 −6	22 −7
	3.	56 −19	62 −24	20 −16	35 −18	47 −29	36 −18	41 −24	62 −19
	4.	345 −27	422 −15	482 −28	790 −33	450 −41	544 −328	431 −223	551 −332

		a	b	c	d	e	f
Set 13	**1.**	325 −44	256 −85	749 −59	971 −57	654 −46	840 −27
	2.	713 −651	427 −392	891 −272	849 −678	419 −277	719 −319
	3.	826 −375	539 −184	992 −483	966 −474	738 −597	449 −155
Set 14	**1.**	792 −275	757 −389	826 −759	432 − 84	973 −396	535 −296
	2.	783 −295	622 −343	521 −62	944 −579	837 −668	958 −199
	3.	762 −177	981 −853	453 −204	756 −678	944 −86	456 −57
Set 15	**1.**	800 −296	600 −269	500 −189	700 −648	300 −254	600 −63
	2.	800 −498	600 −531	400 −85	300 −78	905 −239	800 −357
	3.	404 −319	700 −421	706 −48	600 −332	906 −667	805 −197
Set 16	**1.**	6,423 +1,376	2,562 +6,324	6,134 +3,524	2,734 +5,142	5,875 +1,122	$45.34 +54.51
	2.	827 149 +7,863	1,468 3,708 +4,294	896 406 +4,963	8,747 46 +587	3,568 3,074 +675	$9.06 36.49 +48.57

		a	b	c	d	e	f
Set 17	**1.**	8,453 −5,021	9,826 −7,614	2,465 −342	5,982 −3,741	$35.49 −12.26	$61.53 −1.42
	2.	8,280 −4,069	1,740 −625	5,318 −3,036	8,909 −2,087	$47.60 −42.18	$32.10 −10.09

		a	b	c	d	e	f	g	h
Set 18	**1.**	2 ×1	6 ×4	4 ×4	4 ×9	8 ×4	3 ×3	3 ×4	4 ×5
	2.	4 ×7	9 ×4	5 ×4	1 ×4	4 ×8	2 ×4	7 ×4	4 ×6

		a	b	c	d	e	f
Set 19	**1.**	92 ×4	$0.62 ×4	$0.72 ×3	82 ×3	53 ×3	$0.81 ×2
	2.	72 ×2	82 ×4	$0.94 ×2	$0.51 ×4	$0.53 ×2	$0.61 ×3

		a	b	c	d	e	f	g
Set 20	**1.**	102 ×2	324 ×2	103 ×3	303 ×3	221 ×4	102 ×3	105 ×1
	2.	101 ×9	203 ×3	$1.02 ×4	$1.33 ×3	101 ×8	$2.21 ×2	$3.20 ×3

Set 21	**1.**	209 ×4	118 ×4	32 ×7	12 ×6	16 ×3	43 ×8	309 ×3
	2.	30 ×6	102 ×8	448 ×2	75 ×2	39 ×2	14 ×7	37 ×3

		a	b	c	d	e	f	g
Set 22	**1.**	384 ×2	350 ×2	292 ×3	141 ×6	283 ×3	130 ×6	242 ×4
	2.	120 ×8	493 ×2	140 ×5	462 ×2	231 ×4	140 ×7	170 ×3
Set 23	**1.**	132 ×7	142 ×6	186 ×2	238 ×4	256 ×3	357 ×2	124 ×8
	2.	390 ×2	267 ×3	143 ×5	478 ×2	149 ×4	134 ×7	259 ×3

		a	b	c	d	e	f	g	h
Set 24	**1.**	4)28	6)24	4)4	4)20	4)12	9)36	3)12	5)20
	2.	4)36	4)32	8)32	4)24	4)16	2)8	7)28	4)8
	3.	2)12	5)15	3)24	6)12	3)18	2)6	2)14	5)10
	4.	7)21	2)10	7)7	3)21	3)3	2)18	8)24	8)8
Set 25	**1.**	2)42	4)44	2)62	3)99	4)84	5)55	3)96	2)88
	2.	2)28	2)86	3)69	2)22	2)68	4)48	2)26	3)63
	3.	2)66	3)39	4)84	2)84	2)82	3)66	8)88	2)64
	4.	9)99	2)24	2)44	3)36	2)46	3)93	3)33	2)48

		a	b	c	d	e	f
Set 26	**1.**	2)226	2)268	4)844	7)287	6)186	3)936
	2.	4)448	5)555	4)888	3)693	7)217	3)669
	3.	2)286	4)848	7)147	2)248	3)639	2)428

Set 27

	a	b	c	d	e	f
1.	$4\overline{)348}$	$2\overline{)138}$	$2\overline{)194}$	$4\overline{)228}$	$4\overline{)184}$	$2\overline{)136}$
2.	$4\overline{)336}$	$3\overline{)207}$	$3\overline{)225}$	$2\overline{)114}$	$3\overline{)294}$	$3\overline{)174}$
3.	$3\overline{)237}$	$3\overline{)168}$	$2\overline{)112}$	$2\overline{)118}$	$3\overline{)261}$	$3\overline{)195}$
4.	$4\overline{)156}$	$4\overline{)300}$	$3\overline{)204}$	$2\overline{)176}$	$4\overline{)388}$	$4\overline{)236}$

Set 28

1.	$2\overline{)\$7.94}$	$2\overline{)\$9.76}$	$4\overline{)\$9.28}$	$3\overline{)\$8.79}$	$3\overline{)\$4.92}$	$4\overline{)\$7.36}$
2.	$4\overline{)\$2.98}$	$4\overline{)\$3.37}$	$4\overline{)\$3.05}$	$4\overline{)\$2.77}$	$7\overline{)\$2.29}$	$7\overline{)\$2.18}$
3.	$5\overline{)\$1.05}$	$3\overline{)\$2.22}$	$9\overline{)\$2.79}$	$3\overline{)\$1.76}$	$5\overline{)\$2.20}$	$6\overline{)\$1.98}$
4.	$4\overline{)\$2.74}$	$3\overline{)\$2.05}$	$4\overline{)\$3.72}$	$9\overline{)\$3.69}$	$4\overline{)\$3.49}$	$2\overline{)\$1.58}$
5.	$3\overline{)\$1.35}$	$3\overline{)\$2.99}$	$8\overline{)\$3.39}$	$3\overline{)\$1.62}$	$3\overline{)\$2.25}$	$6\overline{)\$2.49}$

Set 29

	a	b	c	d	e	f	g	h	i
1.	$\begin{array}{r}1\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 7\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 9\\ \hline\end{array}$	$\begin{array}{r}2\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 1\\ \hline\end{array}$	$\begin{array}{r}4\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}8\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 3\\ \hline\end{array}$
2.	$\begin{array}{r}9\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}6\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 8\\ \hline\end{array}$	$\begin{array}{r}7\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 6\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 4\\ \hline\end{array}$	$\begin{array}{r}3\\ \times 5\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 2\\ \hline\end{array}$	$\begin{array}{r}5\\ \times 0\\ \hline\end{array}$

Set 30

	a	b	c	d	e	f
1.	$\frac{1}{5}$ of 5	$\frac{1}{2}$ of 10	$5\overline{)40}$	$9\overline{)45}$	$5\overline{)45}$	$5\overline{)10}$
2.	$\frac{1}{4}$ of 20	$\frac{1}{5}$ of 30	$7\overline{)35}$	$3\overline{)15}$	$5\overline{)25}$	$\frac{1}{5}$ of 35
3.	$\frac{1}{5}$ of 20	$\frac{1}{5}$ of 15	$1\overline{)5}$	$5\overline{)5}$	$5\overline{)15}$	$\frac{1}{3}$ of 15

Set 31

1.	$4\overline{)29}$	$6\overline{)25}$	$2\overline{)19}$	$3\overline{)10}$	$5\overline{)12}$	$7\overline{)29}$
2.	$6\overline{)27}$	$5\overline{)23}$	$3\overline{)16}$	$5\overline{)16}$	$8\overline{)34}$	$6\overline{)19}$
3.	$7\overline{)15}$	$9\overline{)28}$	$6\overline{)20}$	$7\overline{)22}$	$7\overline{)31}$	$8\overline{)26}$

		a	b	c	d	e	f
Set 32	**1.**	5)187	6)213	4)273	9)463	5)312	5)243
	2.	4)147	5)296	4)391	7)162	9)381	6)253
	3.	7)295	4)182	3)236	8)362	9)281	3)176

Set 33	**1.**	5)562	4)574	3)353	2)451	4)857	3)675
	2.	3)492	5)721	2)839	3)852	4)659	3)568
	3.	3)863	4)493	2)277	5)674	4)733	5)717
	4.	2)299	8)980	4)582	6)859	3)868	7)924

		a	b	c	d	e	f	g	h	i
Set 34	**1.**	1 ×6	6 ×5	9 ×6	6 ×4	7 ×6	3 ×6	6 ×6	6 ×8	6 ×2
	2.	6 ×7	6 ×3	4 ×6	6 ×1	2 ×6	5 ×6	6 ×9	8 ×6	6 ×0

		a	b	c	d	e	f
Set 35	**1.**	6)6	$\frac{1}{2}$ of 12	6)24	9)54	$\frac{1}{6}$ of 36	$\frac{1}{6}$ of 48
	2.	6)30	$\frac{1}{6}$ of 6	5)30	6)18	$\frac{1}{4}$ of 24	$\frac{1}{3}$ of 18
	3.	6)12	$\frac{1}{6}$ of 42	6)42	6)54	$\frac{1}{6}$ of 18	$\frac{1}{6}$ of 24

Set 36	**1.**	4)96	6)348	5)83	2)33	3)78	9)$3.07
	2.	5)89	6)103	4)95	2)97	6)98	5)$3.43
	3.	3)98	6)289	4)79	6)89	3)73	5)$4.69
	4.	5)336	7)957	3)86	2)82	3)34	8)$2.02

Set 37		a	b	c	d	e	f	g	h	i
	1.	$6\overline{)5}$	$4\overline{)3}$	$5\overline{)1}$	$6\overline{)4}$	$3\overline{)2}$	$6\overline{)1}$	$4\overline{)0}$	$6\overline{)2}$	$2\overline{)1}$
	2.	$5\overline{)4}$	$4\overline{)2}$	$5\overline{)0}$	$4\overline{)1}$	$5\overline{)3}$	$6\overline{)3}$	$3\overline{)1}$	$5\overline{)2}$	$3\overline{)0}$

Set 38		a	b	c	d	e	f
	1.	$3\overline{)92}$	$6\overline{)365}$	$4\overline{)82}$	$5\overline{)254}$	$6\overline{)784}$	$4\overline{)922}$
	2.	$5\overline{)304}$	$6\overline{)425}$	$5\overline{)354}$	$3\overline{)62}$	$5\overline{)201}$	$6\overline{)302}$
	3.	$4\overline{)243}$	$6\overline{)183}$	$3\overline{)871}$	$8\overline{)481}$	$9\overline{)94}$	$7\overline{)423}$

Set 39							
	1.	$7\overline{)7}$	$\frac{1}{2}$ of 14	$7\overline{)28}$	$\frac{1}{7}$ of 14	$\frac{1}{7}$ of 21	$9\overline{)63}$
	2.	$7\overline{)49}$	$\frac{1}{3}$ of 21	$1\overline{)7}$	$\frac{1}{4}$ of 28	$\frac{1}{6}$ of 42	$4\overline{)28}$
	3.	$5\overline{)35}$	$\frac{1}{7}$ of 35	$8\overline{)56}$	$\frac{1}{7}$ of 56	$7\overline{)42}$	$7\overline{)63}$

Set 40							
	1.	$6\overline{)636}$	$5\overline{)540}$	$3\overline{)921}$	$4\overline{)828}$	$7\overline{)742}$	$2\overline{)608}$
	2.	$3\overline{)618}$	$8\overline{)856}$	$9\overline{)909}$	$4\overline{)416}$	$3\overline{)906}$	$5\overline{)530}$

Set 41		a	b	c	d	e	f	g	h	i
	1.	7 ×4	7 ×7	2 ×7	9 ×7	7 ×3	1 ×7	7 ×6	5 ×7	7 ×8
	2.	7 ×2	3 ×7	7 ×5	6 ×7	4 ×7	7 ×9	8 ×7	7 ×1	7 ×0

Set 42										
	1.	9 ×8	8 ×8	1 ×8	8 ×4	6 ×8	8 ×9	8 ×2	5 ×8	7 ×8
	2.	8 ×1	3 ×8	8 ×7	2 ×8	8 ×3	4 ×8	8 ×5	8 ×6	8 ×0

Set 43		**a**	**b**	**c**	**d**	**e**	**f**
	1.	$\frac{1}{8}$ of 8	$5\overline{)40}$	$\frac{1}{8}$ of 56	$8\overline{)72}$	$\frac{1}{3}$ of 24	$8\overline{)64}$
	2.	$\frac{1}{8}$ of 72	$8\overline{)48}$	$\frac{1}{8}$ of 64	$6\overline{)48}$	$\frac{1}{5}$ of 40	$8\overline{)40}$

Set 44		**a**	**b**	**c**	**d**	**e**
	1.	$5\overline{)5,620}$	$4\overline{)8,964}$	$8\overline{)8,640}$	$7\overline{)8,917}$	$3\overline{)7,756}$
	2.	$2\overline{)9,959}$	$6\overline{)9,672}$	$7\overline{)9,184}$	$6\overline{)8,349}$	$5\overline{)8,231}$

Set 45	**1.**	$7\overline{)5,606}$	$3\overline{)9,015}$	$2\overline{)4,019}$	$7\overline{)7,041}$	$5\overline{)1,001}$
	2.	$5\overline{)3,504}$	$9\overline{)9,165}$	$4\overline{)8,032}$	$6\overline{)6,046}$	$7\overline{)7,064}$

Set 46		**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**
	1.	9 ×1	9 ×7	4 ×9	9 ×9	9 ×5	3 ×9	6 ×9	1 ×9	2 ×9
	2.	9 ×6	9 ×0	8 ×9	5 ×9	9 ×2	7 ×9	9 ×3	9 ×4	9 ×8

Set 47	**1.**	$5\overline{)45}$	$\frac{1}{9}$ of 27	$9\overline{)18}$	$\frac{1}{4}$ of 36	$9\overline{)81}$	$\frac{1}{9}$ of 54
	2.	$9\overline{)36}$	$\frac{1}{9}$ of 63	$9\overline{)72}$	$\frac{1}{6}$ of 54	$7\overline{)63}$	$\frac{1}{9}$ of 81

Set 48		**a**	**b**	**c**	**d**	**e**	**f**	**g**
	1.	24 ×13	25 ×15	23 ×25	16 ×18	21 ×14	26 ×19	17 ×18
	2.	26 ×25	27 23	28 ×16	22 ×25	24 12	17 ×17	18 ×18

Set 49	**1.**	95 ×17	48 ×52	68 ×32	38 ×42	83 ×24	98 ×24	45 ×38
	2.	42 ×39	47 ×47	48 ×36	45 ×45	49 ×28	38 ×92	72 ×65

Tables of Measures

Counting Things

12 things = 1 dozen (doz.)

Measures of Length

12 inches (in.) = 1 foot (ft.)
5,280 ft. = 1 mile (mi.)
3 feet (ft.) = 1 yard (yd.)
36 in. = 1 yd.

Measures of Weight

16 ounces (oz.) = 1 pound (lb.)
2,000 pounds = 1 ton (T.)

Liquid Measures

2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

Dry Measures

2 pints (pt.) = 1 quart (qt.)
4 quarts = 1 gallon (gal.)
2 gallons = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

Time

60 seconds (sec.) = 1 minute (min.)
60 minutes = 1 hour (hr.)
24 hours = 1 day (da.)
7 days = 1 week (wk.)
12 months = 1 year (yr.)
365 days = 1 year
366 days = 1 leap year

Vocabulary

This text contains 124 new words, exclusive of proper names and abbreviations. These 124 words used are in addition to 1,698 words assumed as known to pupils entering the fourth grade. The assumed words are a total of the words taught in the reading and arithmetic programs for Grades One, Two, and Three.

Some pages contain no new words. No page contains more than two new words and each new word is used at least twice on the page. In the Teacher's Manual, in connection with the teaching suggestions for a page of the text, any words new to the page are listed under the heading: New Words. In addition, a complete list of new words by pages is furnished at the back of the Manual.

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